Mini System **FW-C115/22**

Service
Service
Service

Service Manual

Introduction of FW-C115/22

For Service documentation please refer to:

Service Manual:	FW-C100	3139 785 22520
Service Information:	A01-150	3139 785 22930

FW-C115/22 refers to FW-C100/22 except the following adaptations:

1. Mechanical & Accessories

101	3139 118 17100	Front Cabinet
105	3139 118 17110	Window CDC Control
107	3139 118 17120	Cover Tray CDC-LC
124	3139 118 17130	Window Display
132	3139 118 17270	Button Power On/Off
133	3139 118 17140	Button Set Source Select
145	3139 118 17150	Button DSC
153	3139 118 17160	Cover Control
158	3139 118 17170	Cover Cassette Left
159	3139 118 17180	Cover Cassette Right
350	3139 118 79030	Loudspeaker Box
387	3139 115 21360	Instruction For Use

2. New 3CDC-LLC-MCD1 Module is attached.

CLASS 1
LASER PRODUCT

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Published by KC 0149 Service Audio Printed in The Netherlands Subject to modification

GB 3139 785 30033

Version 1.0

PHILIPS

3CDC-LLC-MCD1

(3 Disc Carousel Changer)

Layout stage .3

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Service hints

CAUTION

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CD MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE

- ***SWITCH OFF POWER SUPPLY***
- ***ESD PROTECTION***

ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

<ins>The following steps have to be done when replacing the CD mechanism:</ins>

1. Disconnect flexfoil cable from the old CD drive
2. Put a paperclip on the flexfoil to short-circuit the contacts (fig.1)
3. Remove the old CD drive
4. Remove paperclip from the flexfoil and connect it to the new drive
5. Position the new CD drive in its studs
6. Remove solder joint from the Laserunit

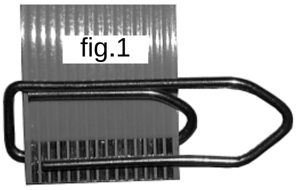
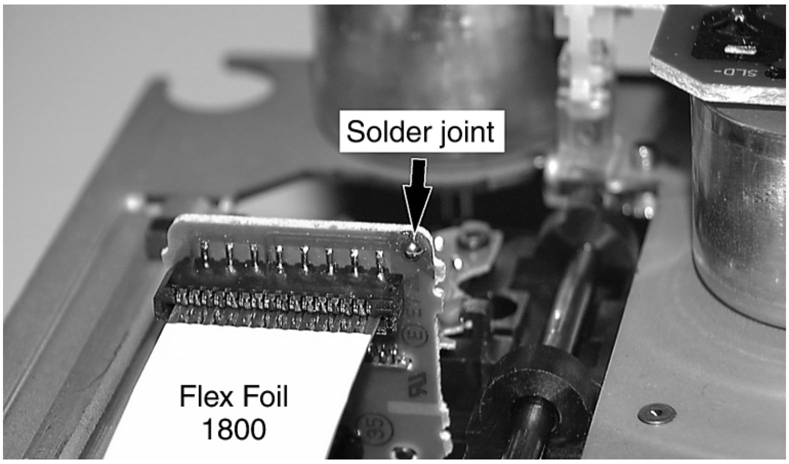


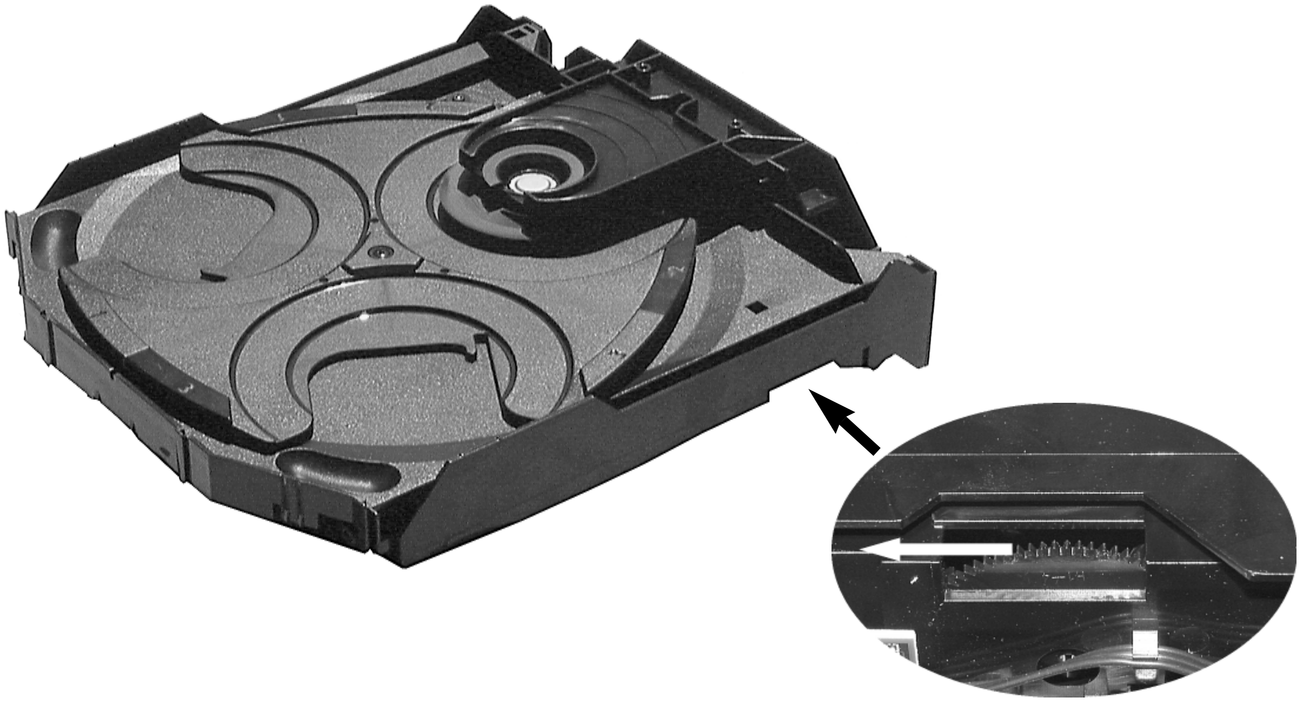
fig.1

Attention: The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laserdiode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connection the drive to the set.



Emergency open

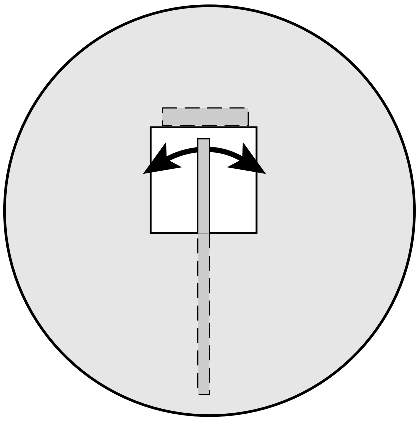
In case of a Supply fault, the tray can be opened manually.
1. Remove the top cover of the set to get access to the Changer Module.
2. Turn gearwheel clockwise (as shown in picture below).



Service hints

Dismantling of Tray

1. Open the tray.
2. Release 2x catch as shown in fig. 2 and Detail A
3. Pull tray out.



Detail A

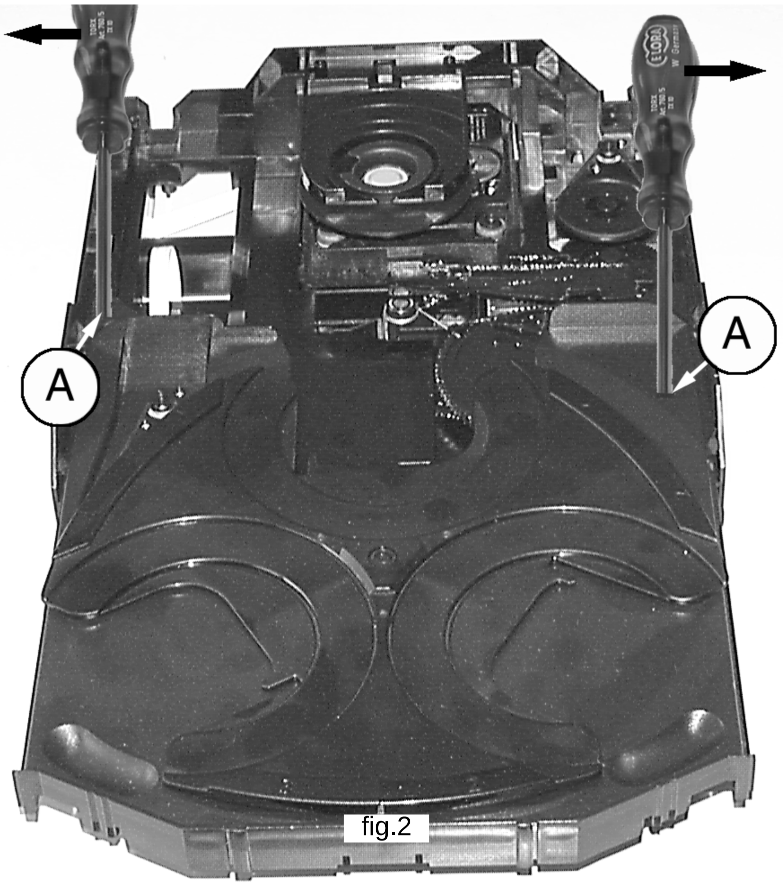
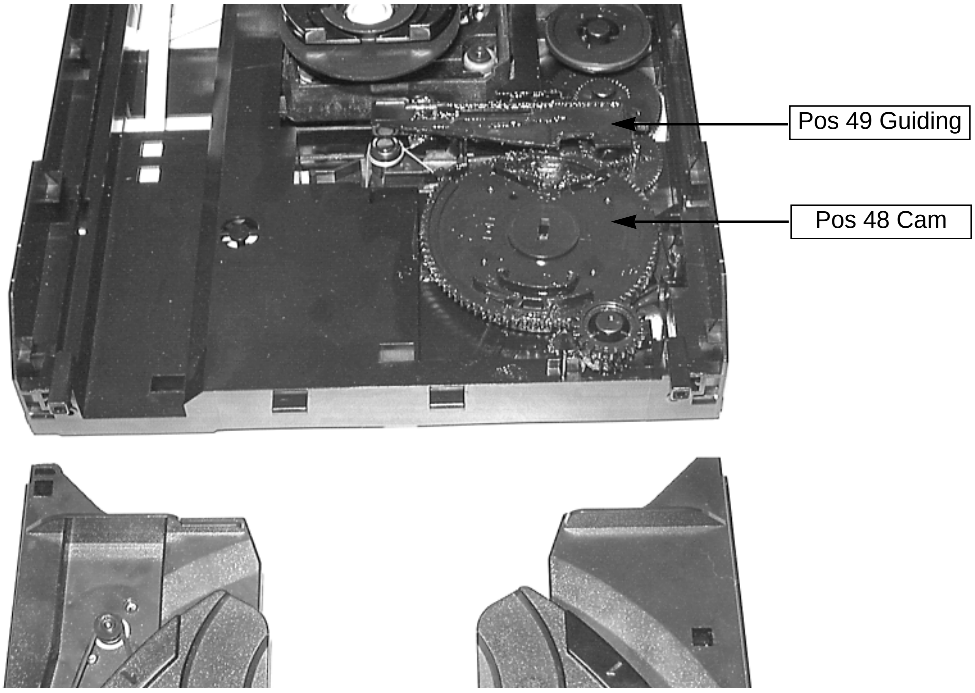


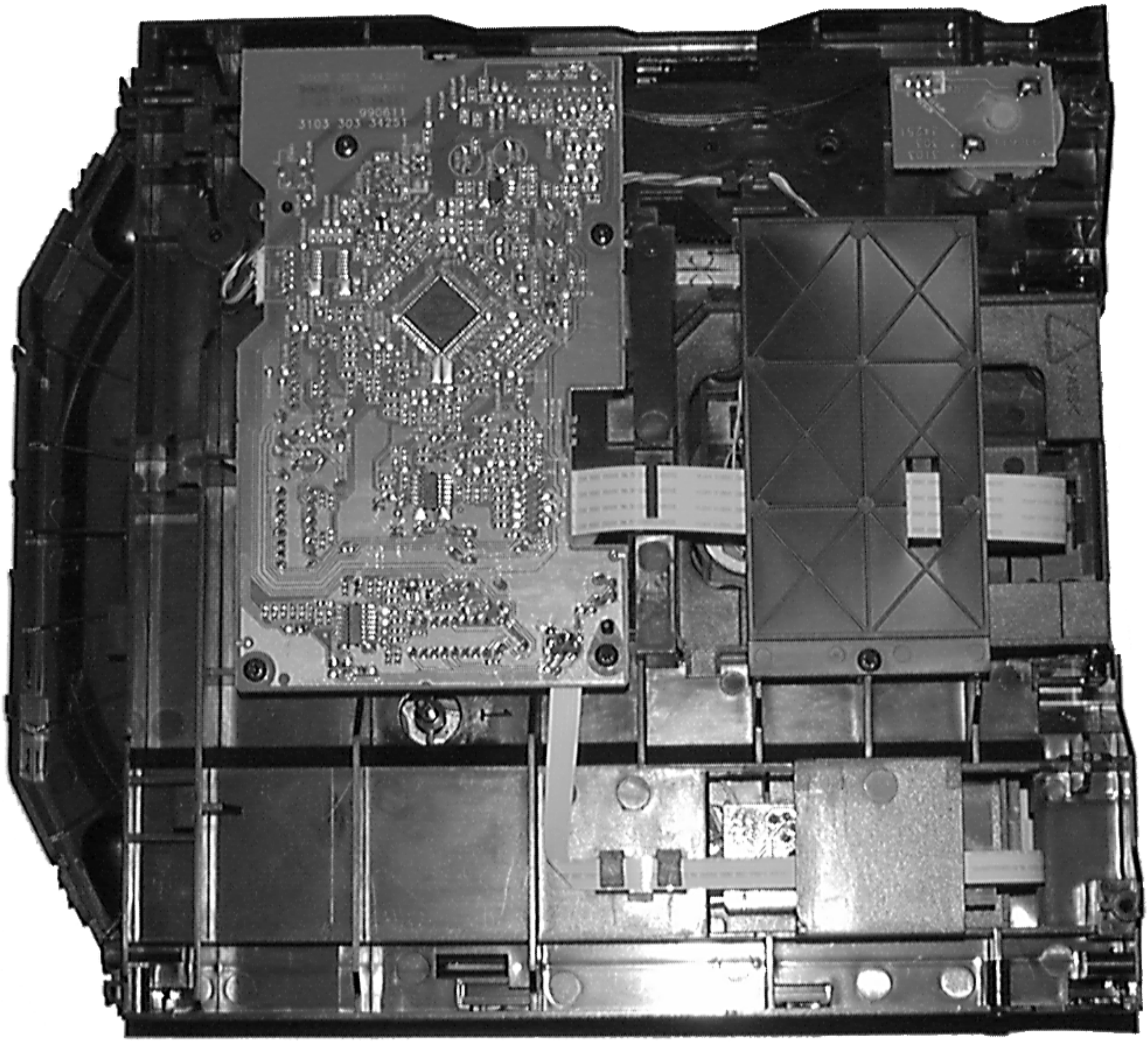
fig.2

Assembling of Tray

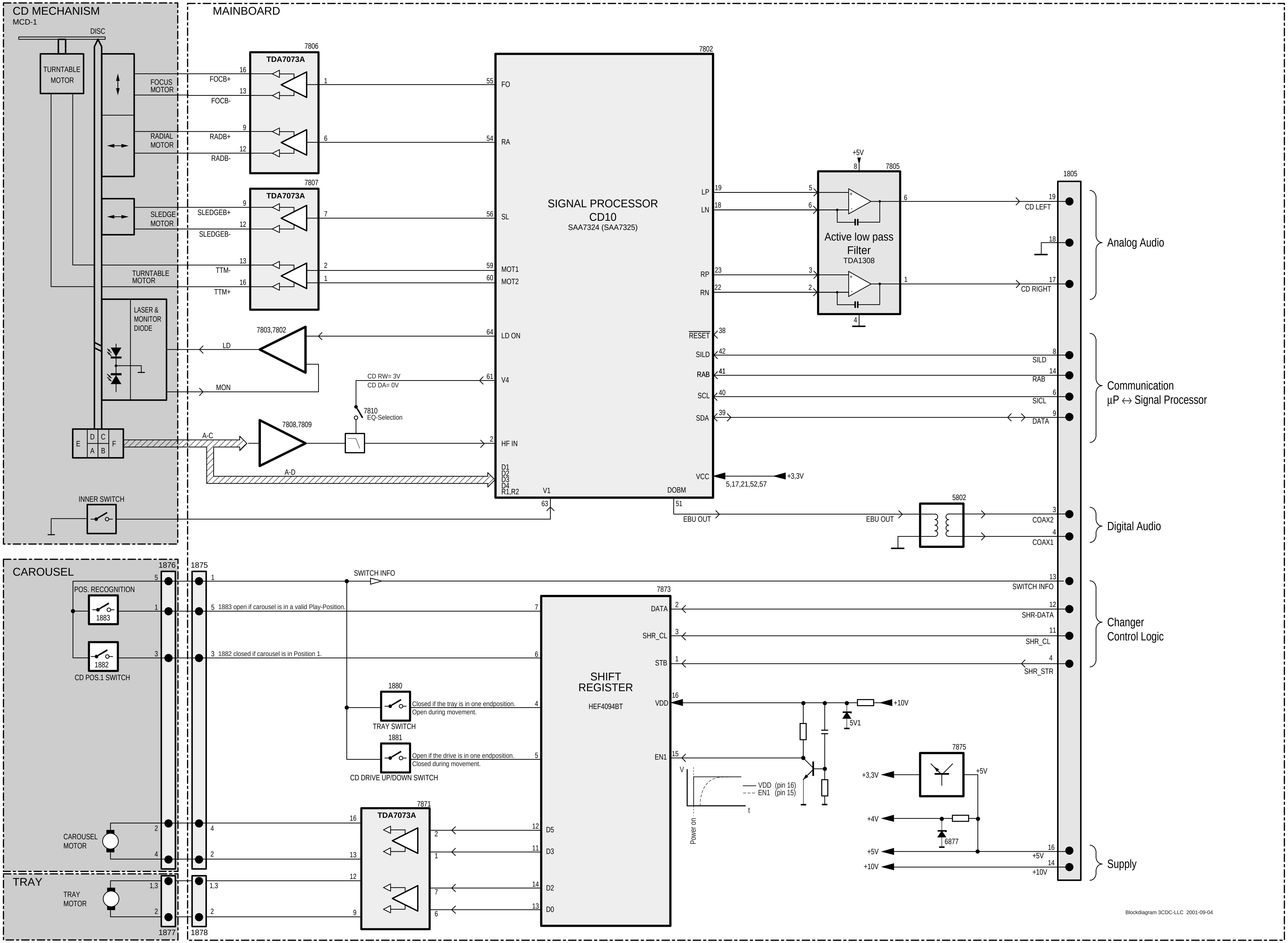
1. Turn Cam (pos. 48) clockwise to end position.
2. If necessary - move Guiding (pos. 49) to the right end position.
3. Insert the Tray.



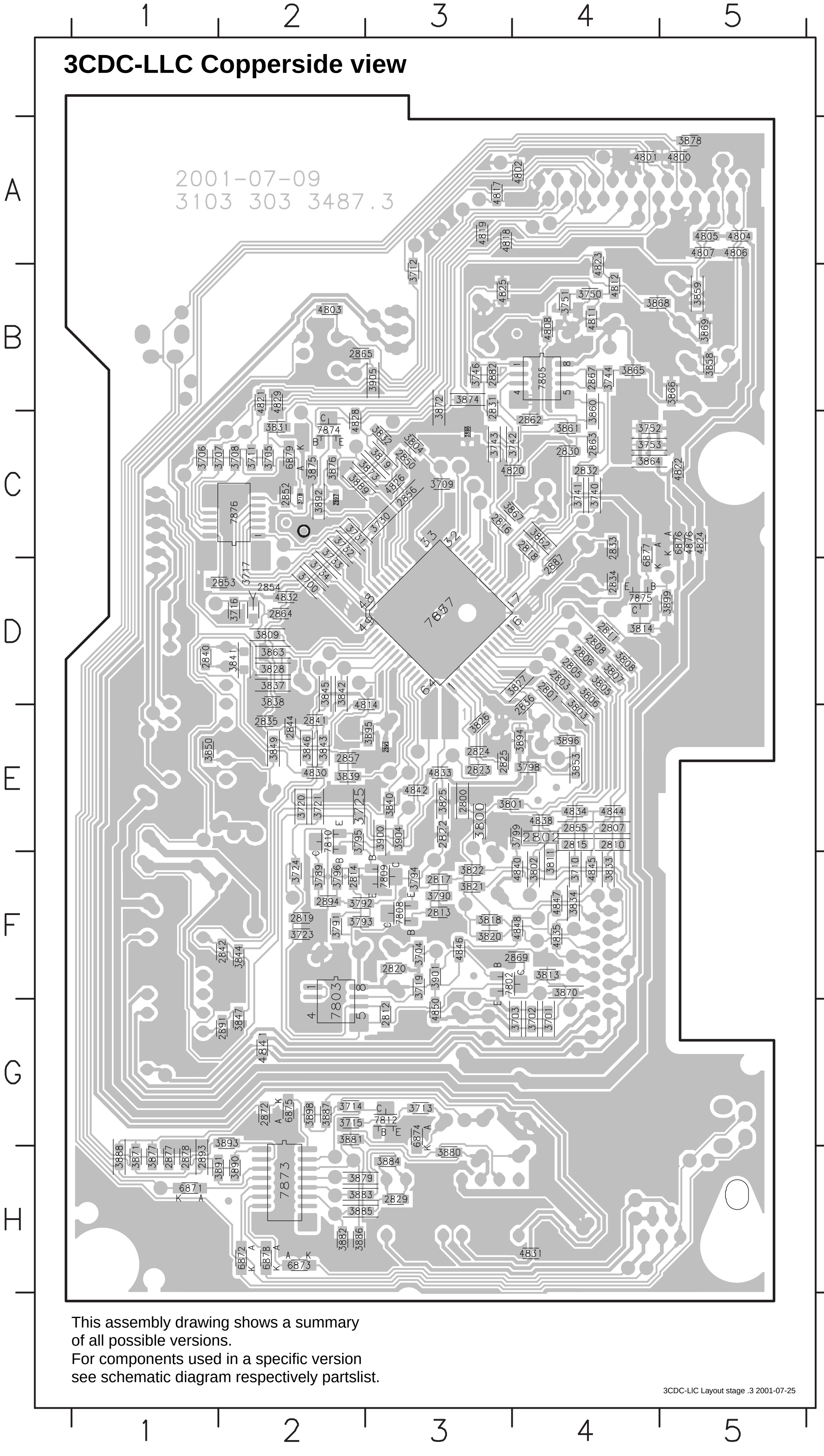
Service Position


990611
3103 303 34251

BLOCK DIAGRAM 3CDC-LLC-MCD1


CD MECHANISM
MCD-1
DISC
TURNTABLE MOTOR
FOCUS MOTOR
RADIAL MOTOR
SLEDGE MOTOR
TURNTABLE MOTOR
LASER & MONITOR DIODE
INNER SWITCH
E D C A B F
MAINBOARD
7806
TDA7073A
FOCB+
FOCB-
RADB+
RADB-
7807
TDA7073A
SLEDGEB+
SLEDGEB-
TTM-
TTM+
7803,7802
LD
MON
A-C
A-D
7808,7809
CD RW= 3V
CD DA= 0V
7810
EQ-Selection
7802
SIGNAL PROCESSOR
CD10
SAA7324 (SAA7325)
FO
RA
SL
MOT1
MOT2
LD ON
V4
HF IN
D1 D2 D3 D4 R1,R2
V1
DOBM
LP
LN
RP
RN
RESET
SILD
RAB
SCL
SDA
VCC
5,17,21,52,57
+3,3V
EBU OUT
EBU OUT
5802
+5V
7805
Active low pass Filter
TDA1308
1805
CD LEFT
CD RIGHT
SILD
RAB
SICL
DATA
COAX2
COAX1
Analog Audio
Communication
µP ↔ Signal Processor
Digital Audio
CAROUSEL
1876
1875
POS. RECOGNITION
1883
1882
CD POS.1 SWITCH
1883 open if carousel is in a valid Play-Position.
1882 closed if carousel is in Position 1.
SWITCH INFO
SWITCH INFO
7873
SHIFT REGISTER
HEF4094BT
DATA
SHR_CL
STB
VDD
EN1
SHR-DATA
SHR_CL
SHR_STR
Changer Control Logic
1880
Closed if the tray is in one endposition.
Open during movement.
TRAY SWITCH
1881
Open if the drive is in one endposition.
Closed during movement.
CD DRIVE UP/DOWN SWITCH
+10V
5V1
V
t
Power on
VDD (pin 16)
EN1 (pin 15)
7875
+3,3V
+5V
+4V
6877
+5V
+10V
+5V
+10V
Supply
CAROUSEL MOTOR
7871
TDA7073A
D5
D3
D2
D0
TRAY
TRAY MOTOR
1877
1878
Blockdiagram 3CDC-LLC 2001-09-04

3CDC-LLC Copperside view



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LIC Layout stage .3 2001-07-25

Mapping

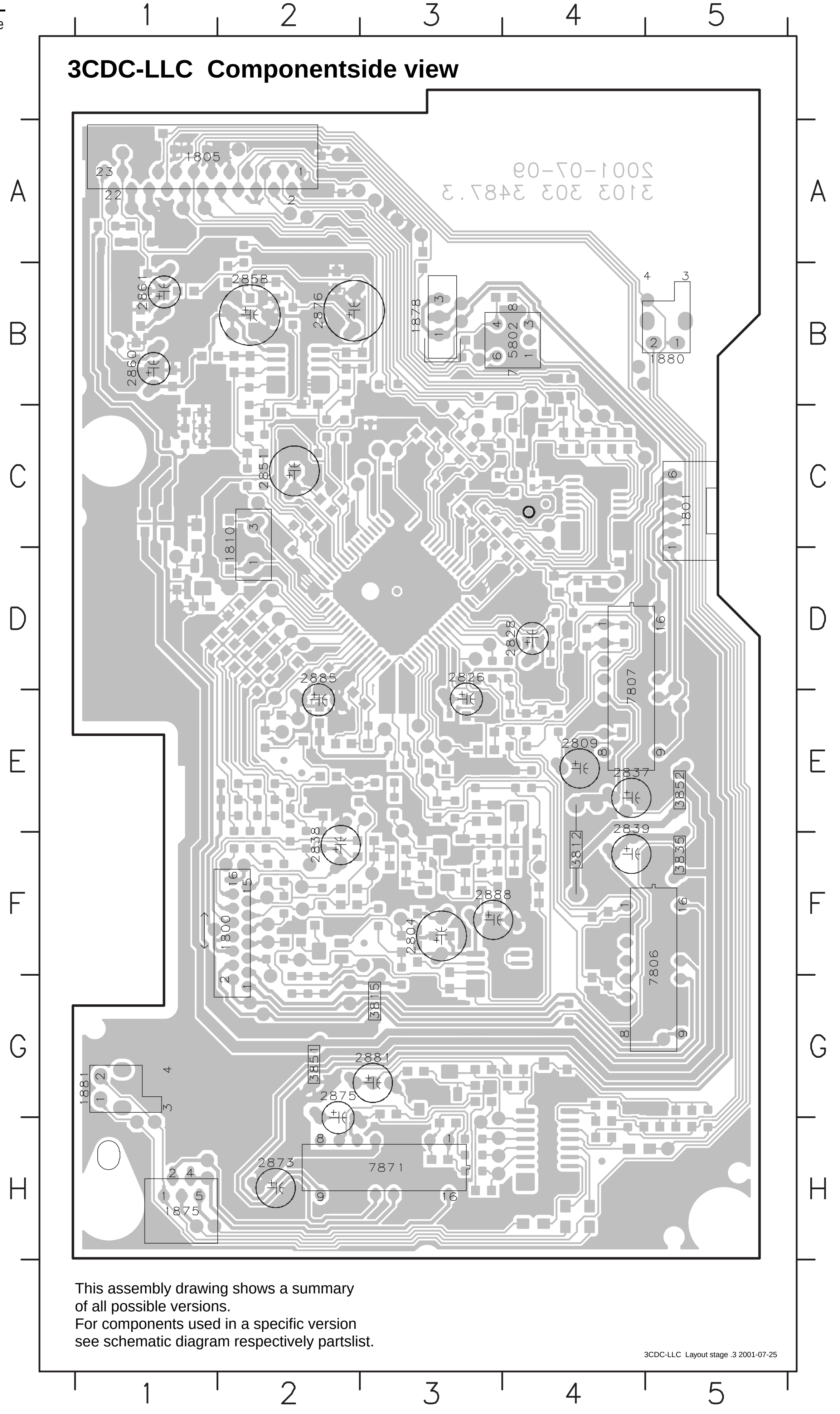
Copperside

2800	E3
2801	D4
2802	E4
2803	D4
2805	D4
2806	D4
2807	E4
2808	D4
2810	E4
2811	D4
2812	G3
2813	F3
2814	F2
2815	E4
2816	C3
2817	F3
2818	C4
2819	F2
2820	F3
2822	E3
2823	E3
2824	E3
2825	E3
2829	H3
2830	C4
2831	B3
2832	C4
2833	C4
2834	D4
2835	E2
2836	D4
2840	D1
2841	E2
2842	F2
2844	E2
2850	C3
2852	C2
2853	D2
2854	D2
2855	E4
2856	C3
2857	E2
2862	C4
2863	C4
2864	D2
2865	B3
2867	B4
2869	F4
2872	G2
2877	H1
2878	H1
2882	B3
2887	C4
2891	G2
2893	H1
2894	F2
2895	E3
2896	C3
2897	C2
3700	D2
3701	G4
3702	G4
3703	G4
3704	F3
3705	C2
3706	C1
3707	C2
3708	C2
3709	C3
3710	F4
3711	C2
3712	A3
3713	G3
3714	G2
3715	G2
3716	D2
3717	D2
3718	C2
3719	F3
3720	E2
3721	E2
3723	F2
3724	F2
3725	E2
3730	C3
3731	C2
3732	C2
3733	C2
3734	D2
3740	C4
3741	C4
3742	C4
3743	C3
3744	B4
3746	B3
3750	B4
3751	B4
3752	C4
3753	C4
3789	F2
3790	F3
3791	F2
3792	F3
3793	F3
3794	F3
3795	E2
3796	F2
3798	E4
3799	E4
3800	E3
3801	E4
3802	F4
3803	D4
3804	C3
3805	D4
3806	D4
3807	D4
3808	D4
3809	D2
3811	F4
3813	F4
3814	D4
3818	F3
3819	C3
3820	F3
3821	F3
3822	F3
3825	E3
3826	E3
3827	D4
3828	D2
3831	C2
3832	C3
3833	F4
3834	F4
3837	D2
3838	D2
3839	E2
3840	E3
3841	D2
3842	D2
3843	E2
3844	F2
3845	D2
3846	E2
3847	G2
3849	E2
3850	E1
3853	E4
3858	B5
3859	B5
3860	B4
3861	C4
3862	C4
3863	D2
3864	C4
3865	B4
3866	B5
3867	C4
3868	B5
3869	B5
3870	F4
3871	H1
3872	B3
3873	C3
3874	B3
3875	C2
3876	C2
3877	H1
3878	A5
3879	H3
3880	G3
3881	G2
3882	H2
3883	H3
3884	H3
3885	H3
3886	H2
3887	G2
3888	H1
3889	C2
3890	H2
3891	H2
3892	C2
3893	G2
3894	E4
3895	E3
3896	E4
3898	G2
3899	D5
3900	E3
3901	F3
3904	E3
3905	B3
4800	A5
4801	A4
4802	A4
4803	B2
4804	A5
4805	A5
4806	A5
4807	A5
4808	B4
4811	B4
4812	B4
4814	D3
4817	A3
4818	A3
4819	A3
4820	C4
4821	B2
4822	C5
4823	A4
4824	C5
4825	B3
4826	C3
4828	C2
4829	B2
4830	E2
4831	H4
4832	D2
4833	E3
4834	E4
4835	F4
4838	E4
4840	F4
4841	G2
4842	E3
4844	E4
4845	F4
4846	F3
4847	F4
4848	F4
4850	G3
4876	C5
6871	H1
6872	H2
6873	H2
6874	G3
6875	G2
6876	C5
6877	C4
6878	H2
6879	C2
7802	F4
7803	F2
7805	B4
7808	F3
7809	F3
7810	E2
7812	G3
7873	H2
7874	C2
7875	D4
7876	C2
7877	D3

Componentside

1800	F2
1801	C5
1805	A2
1810	C2
1875	H1
1878	B3
1880	B5
1881	G1
2804	F3
2809	E4
2826	D3
2828	D4
2837	E5
2838	F2
2839	E5
2851	C2
2858	B2
2860	B1
2861	B1
2873	H2
2875	G3
2876	B2
2881	G3
2885	D2
2888	F4
3812	F4
3815	G3
3835	F5
3851	G2
3852	E5
5802	B4
7806	F5
7807	D5
7871	H3

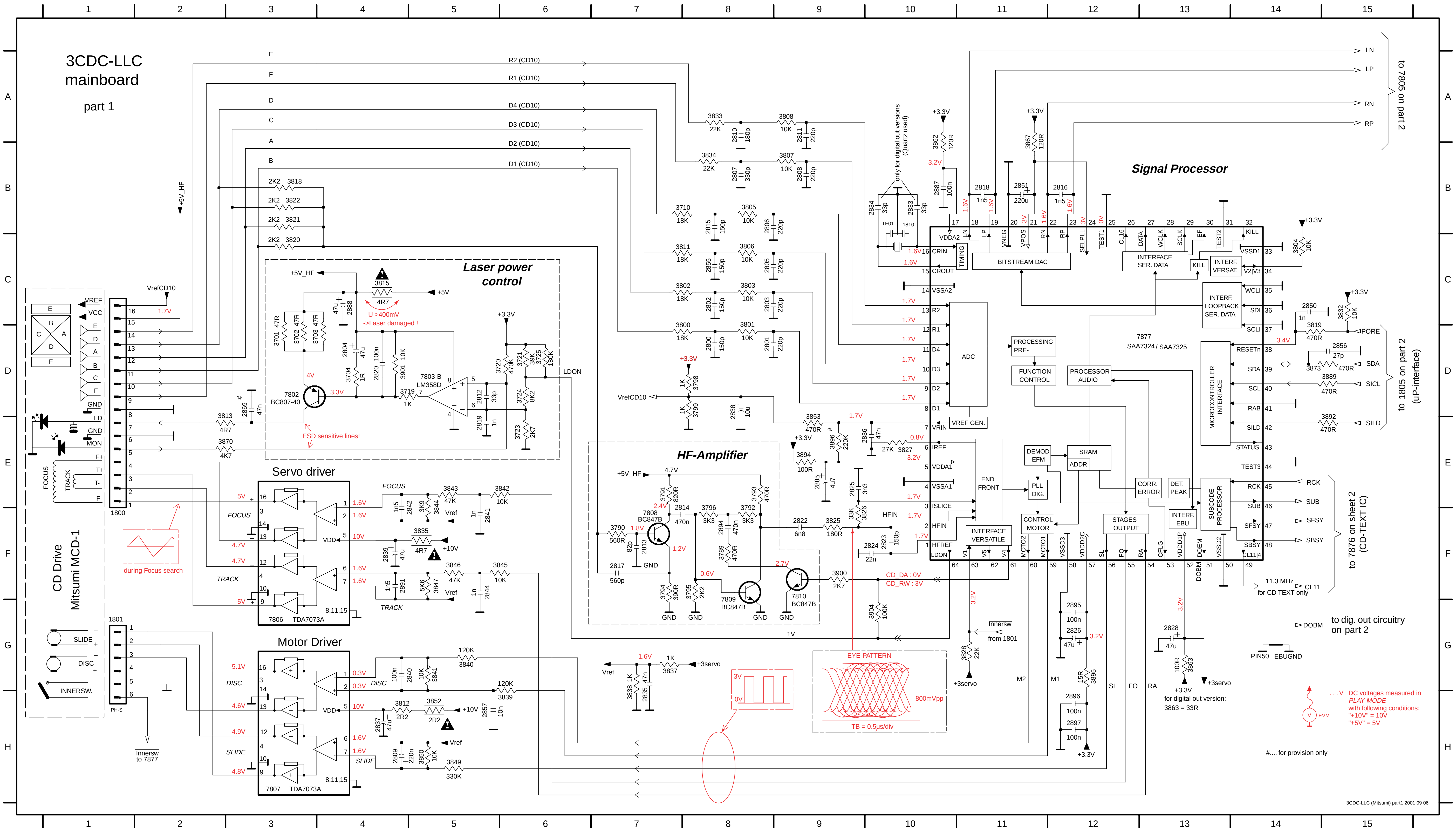
3CDC-LLC Componentside view



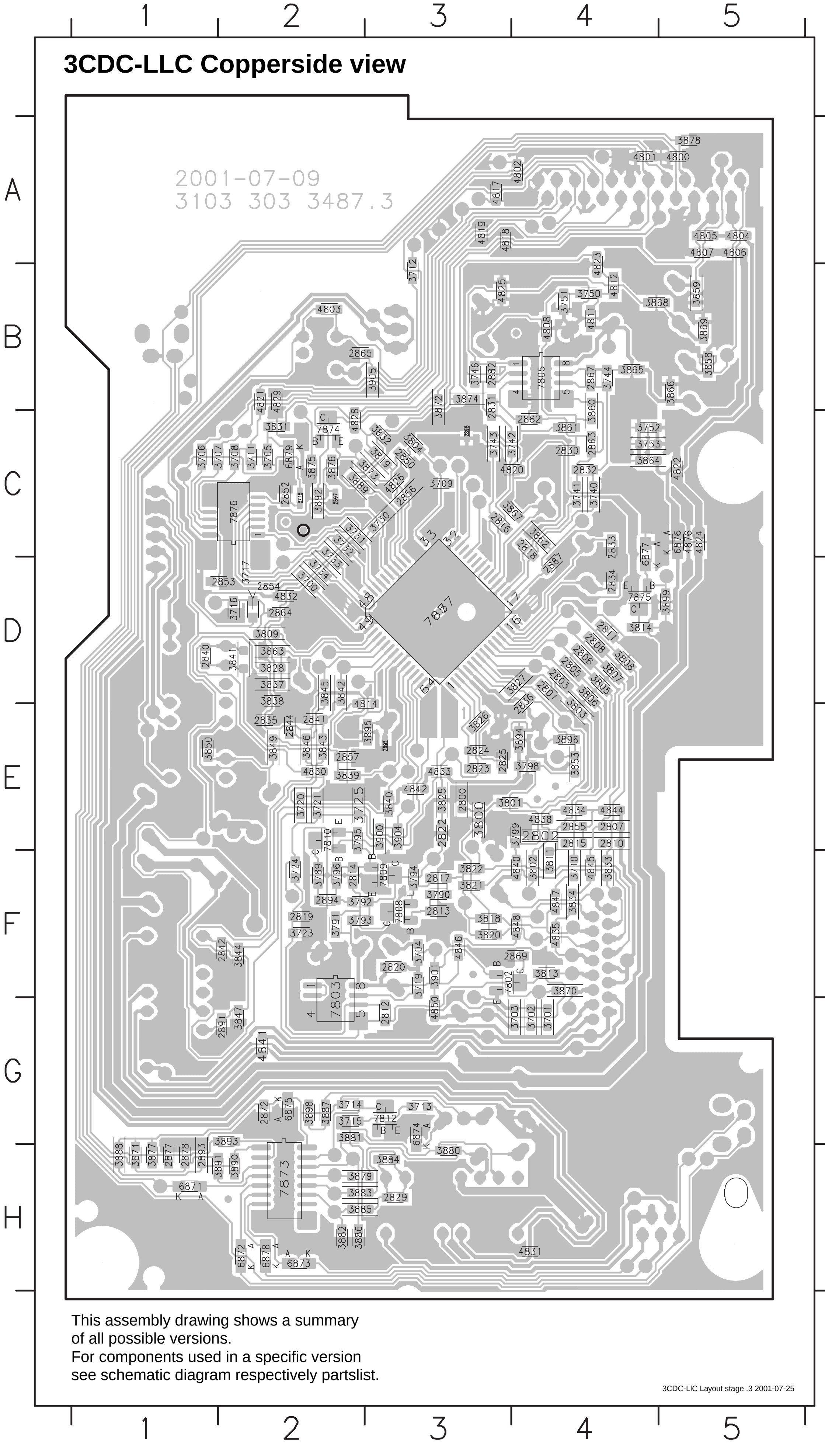
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LLC Layout stage .3 2001-07-25

1800	F1
1801	G1
1810	B10
2800	D8
2801	D8
2802	C8
2803	C8
2804	D4
2805	C8
2806	B8
2807	B8
2808	B9
2809	H4
2810	A8
2811	A9
2812	D5
2813	F7
2814	F7
2815	B8
2816	B12
2817	F7
2818	B11
2819	E5
2820	D4
2822	F9
2823	F10
2824	F10
2825	E9
2826	G12
2828	G13
2833	B10
2834	B10
2835	H7
2836	E10
2837	H4
2838	D8
2839	F4
2840	G4
2841	F5
2842	E5
2844	F5
2850	C14
2851	B11
2855	C8
2856	D15
2857	H5
2869	D3
2885	E9
2887	B10
2888	C4
2891	F4
2894	F8
2895	G12
2896	H12
2897	H12
3701	D3
3702	D3
3703	D3
3704	D4
3709	C14
3710	B8
3719	D4
3720	D5
3721	D6
3723	E6
3724	D6
3725	D6
3789	F8
3790	F7
3791	E7
3792	F8
3793	E8
3794	F7
3795	F8
3796	F8
3798	D8
3799	D8
3800	D8
3801	D8
3802	C8
3803	C8
3804	C14
3805	B8
3806	C8
3807	B9
3808	A9
3811	C8
3812	H4
3813	E2
3815	C4
3818	B3
3819	D14
3820	C3
3821	B3
3822	B3
3825	F9
3826	F9
3827	E10
3828	G11
3832	C15
3833	A8
3834	B8
3835	F5
3837	G7
3838	H7
3839	H6
3840	G5
3841	G5
3842	E6
3843	E5
3844	E5
3845	F6
3846	F5
3847	F5
3849	H5
3850	H5
3852	H5
3853	E9
3862	A10
3863	G13
3867	A11
3870	E2
3873	D14
3889	D15
3892	E15
3894	E9
3895	G12
3896	E9
3900	F9
3901	D4
3904	G10
7802	D3
7803-A	B5
7803-B	D5
7806	G3
7807	H3
7808	F7
7809	G8
7810	F9
7877	D12
MP713	C9
MP715	D9
MP716	B9
MP717	A9
MP729	B9
MP730	C9
MP731	B13
MP743	D2
MP744	C2
MP745	E2
MP800	E2
MP802	B15
MP809	D10
MP812	G2
MP813	B3
MP814	G2
MP815	B3
MP816	A3
MP817	A3
MP818	C4
MP819	F10
MP820	F8
MP821	C15
MP827	B10
MP828	G11
MP829	A3
MP831	A4
MP836	D3
MP837	D4
MP838	G6
MP839	G6
MP840	E6
MP841	F6
MP842	H6
MP843	G7
MP844	E9
MP845	F4
MP846	H2
MP847	H2
MP848	E2
MP849	E2
MP850	E2
MP851	E2
MP852	G2
MP853	G2
MP858	G8
MP859	E10
MP860	C2
MP872	C15
MP873	H4
MP875	F13
MP876	E2
MP877	E3
MP878	B13
MP879	B11
MP883	C4
MP884	C5
MP893	F10


3CDC-LLC mainboard
part 1
Laser power control
Servo driver
Motor Driver
HF-Amplifier
Signal Processor
CD Drive
Mitsumi MCD-1
FOCUS
TRACK
SLIDE
DISC
INNERSW.
VREF
VCC
GND
LD
MON
1800
1801
PH-S
during Focus search
ESD sensitive lines!
U >400mV
->Laser damaged !
7802 BC807-40
7803-B LM358D
LDON
VrefCD10
7806 TDA7073A
7807 TDA7073A
7808 BC847B
7809 BC847B
7810 BC847B
7877 SAA7324 / SAA7325
BITSTREAM DAC
ADC
PROCESSING PRE-
FUNCTION CONTROL
PROCESSOR AUDIO
VREF GEN.
END FRONT
DEMOD EFM
SRAM
ADDR
PLL DIG.
CORR. ERROR
DET. PEAK
CONTROL MOTOR
STAGES OUTPUT
INTERF. EBU
INTERFACE VERSATILE
SUBCODE PROCESSOR
MICROCONTROLLER INTERFACE
INTERF. LOOPBACK SER. DATA
INTERFACE SER. DATA
INTERF. VERSAT.
KILL
only for digital out versions (Quartz used)
EYE-PATTERN
800mVpp
TB = 0.5µs/div
CD_DA : 0V
CD_RW : 3V
Innersw from 1801
Innersw to 7877
LN
LP
RN
RP
to 7805 on part 2
SDA
SICL
SILD
to 1805 on part 2 (uP-interface)
RCK
SUB
SFSY
SBSY
to 7876 on sheet 2 (CD-TEXT IC)
11.3 MHz
CL11
for CD TEXT only
DOBM
to dig. out circuitry on part 2
+3.3V for digital out version: 3863 = 33R
PIN50 EBUGND
... V DC voltages measured in PLAY MODE with following conditions: "+10V" = 10V "+5V" = 5V
#.... for provision only
3CDC-LLC (Mitsumi) part1 2001 09 06

3CDC-LLC Copperside view



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LlC Layout stage .3 2001-07-25

Mapping

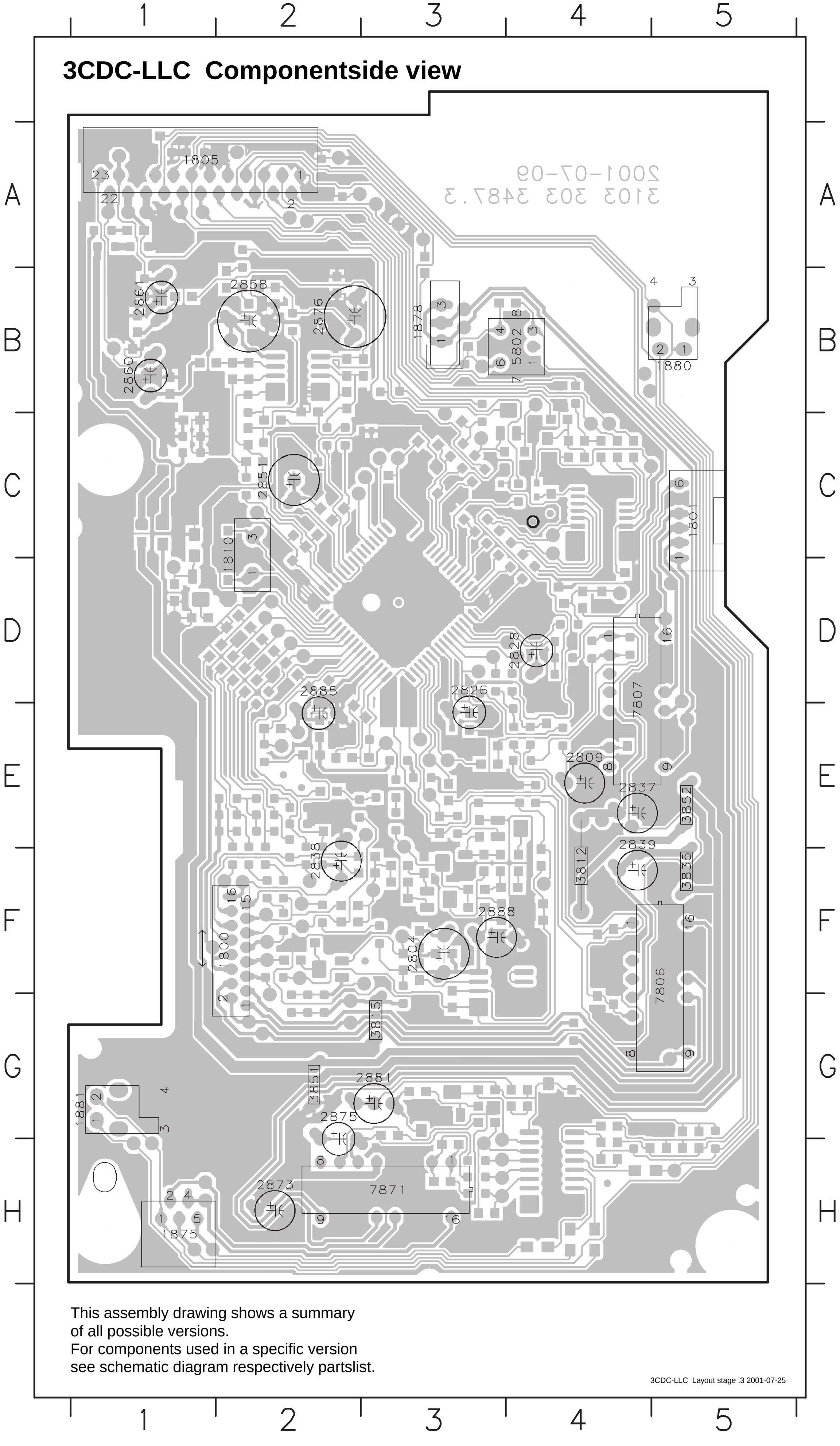
Copperside

2800	E3
2801	D4
2802	E4
2803	D4
2805	D4
2806	D4
2807	E4
2808	D4
2810	E4
2811	D4
2812	G3
2813	F3
2814	F2
2815	E4
2816	C3
2817	F3
2818	C4
2819	F2
2820	F3
2822	E3
2823	E3
2824	E3
2825	E3
2829	H3
2830	C4
2831	B3
2832	C4
2833	C4
2834	D4
2835	E2
2836	D4
2840	D1
2841	E2
2842	F2
2844	E2
2850	C3
2852	C2
2853	D2
2854	D2
2855	E4
2856	C3
2857	E2
2862	C4
2863	C4
2864	D2
2865	B3
2867	B4
2869	F4
2872	G2
2877	H1
2878	H1
2882	B3
2887	C4
2891	G2
2893	H1
2894	F2
2895	E3
2896	C3
2897	C2
3700	D2
3701	G4
3702	G4
3703	G4
3704	F3
3705	C2
3706	C1
3707	C2
3708	C2
3709	C3
3710	F4
3711	C2
3712	A3
3713	G3
3714	G2
3715	G2
3716	D2
3717	D2
3718	C2
3719	F3
3720	E2
3721	E2
3723	F2
3724	F2
3725	E2
3730	C3
3731	C2
3732	C2
3733	C2
3734	D2
3740	C4
3741	C4
3742	C4
3743	C3
3744	B4
3746	B3
3750	B4
3751	B4
3752	C4
3753	C4
3789	F2
3790	F3
3791	F2
3792	F3
3793	F3
3794	F3
3795	E2
3796	F2
3798	E4
3799	E4
3800	E3
3801	E4
3802	F4
3803	D4
3804	C3
3805	D4
3806	D4
3807	D4
3808	D4
3809	D2
3811	F4
3813	F4
3814	D4
3818	F3
3819	C3
3820	F3
3821	F3
3822	F3
3825	E3
3826	E3
3827	D4
3828	D2
3831	C2
3832	C3
3833	F4
3834	F4
3837	D2
3838	D2
3839	E2
3840	E3
3841	D2
3842	D2
3843	E2
3844	F2
3845	D2
3846	E2
3847	G2
3849	E2
3850	E1
3853	E4
3858	B5
3859	B5
3860	B4
3861	C4
3862	C4
3863	D2
3864	C4
3865	B4
3866	B5
3867	C4
3868	B5
3869	B5
3870	F4
3871	H1
3872	B3
3873	C3
3874	B3
3875	C2
3876	C2
3877	H1
3878	A5
3879	H3
3880	G3
3881	G2
3882	H2
3883	H3
3884	H3
3885	H3
3886	H2
3887	G2
3888	H1
3889	C2
3890	H2
3891	H2
3892	C2
3893	G2
3894	E4
3895	E3
3896	E4
3898	G2
3899	D5
3900	E3
3901	F3
3904	E3
3905	B3
4800	A5
4801	A4
4802	A4
4803	B2
4804	A5
4805	A5
4806	A5
4807	A5
4808	B4
4811	B4
4812	B4
4814	D3
4817	A3
4818	A3
4819	A3
4820	C4
4821	B2
4822	C5
4823	A4
4824	C5
4825	B3
4826	C3
4828	C2
4829	B2
4830	E2
4831	H4
4832	D2
4833	E3
4834	E4
4835	F4
4838	E4
4840	F4
4841	G2
4842	E3
4844	E4
4845	F4
4846	F3
4847	F4
4848	F4
4850	G3
4876	C5
6871	H1
6872	H2
6873	H2
6874	G3
6875	G2
6876	C5
6877	C4
6878	H2
6879	C2
7802	F4
7803	F2
7805	B4
7808	F3
7809	F3
7810	E2
7812	G3
7873	H2
7874	C2
7875	D4
7876	C2
7877	D3

Componentside

1800	F2
1801	C5
1805	A2
1810	C2
1875	H1
1878	B3
1880	B5
1881	G1
2804	F3
2809	E4
2826	D3
2828	D4
2837	E5
2838	F2
2839	E5
2851	C2
2858	B2
2860	B1
2861	B1
2873	H2
2875	G3
2876	B2
2881	G3
2885	D2
2888	F4
3812	F4
3815	G3
3835	F5
3851	G2
3852	E5
5802	B4
7806	F5
7807	D5
7871	H3

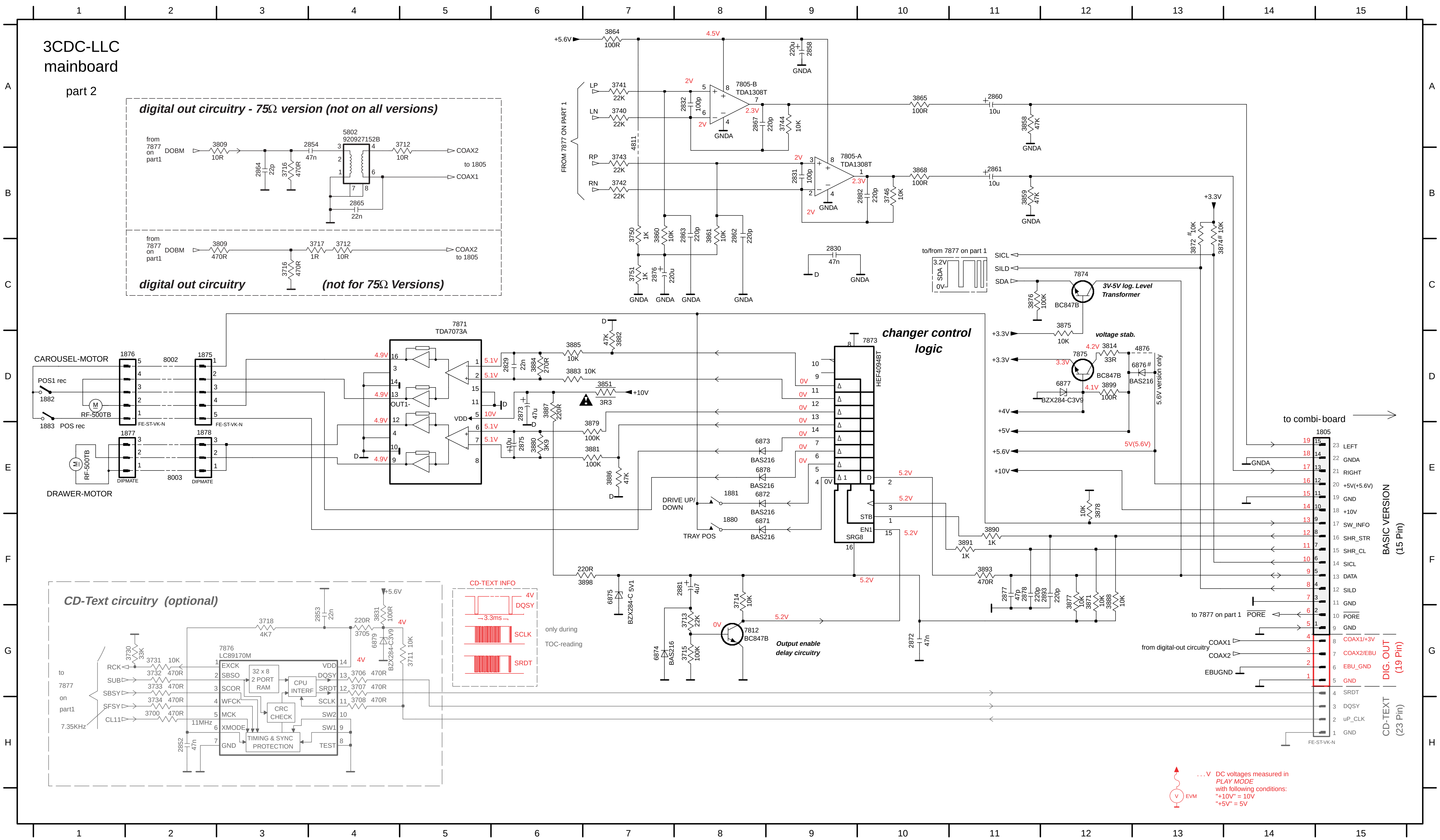
3CDC-LLC Componentside view



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LLC Layout stage .3 2001-07-25

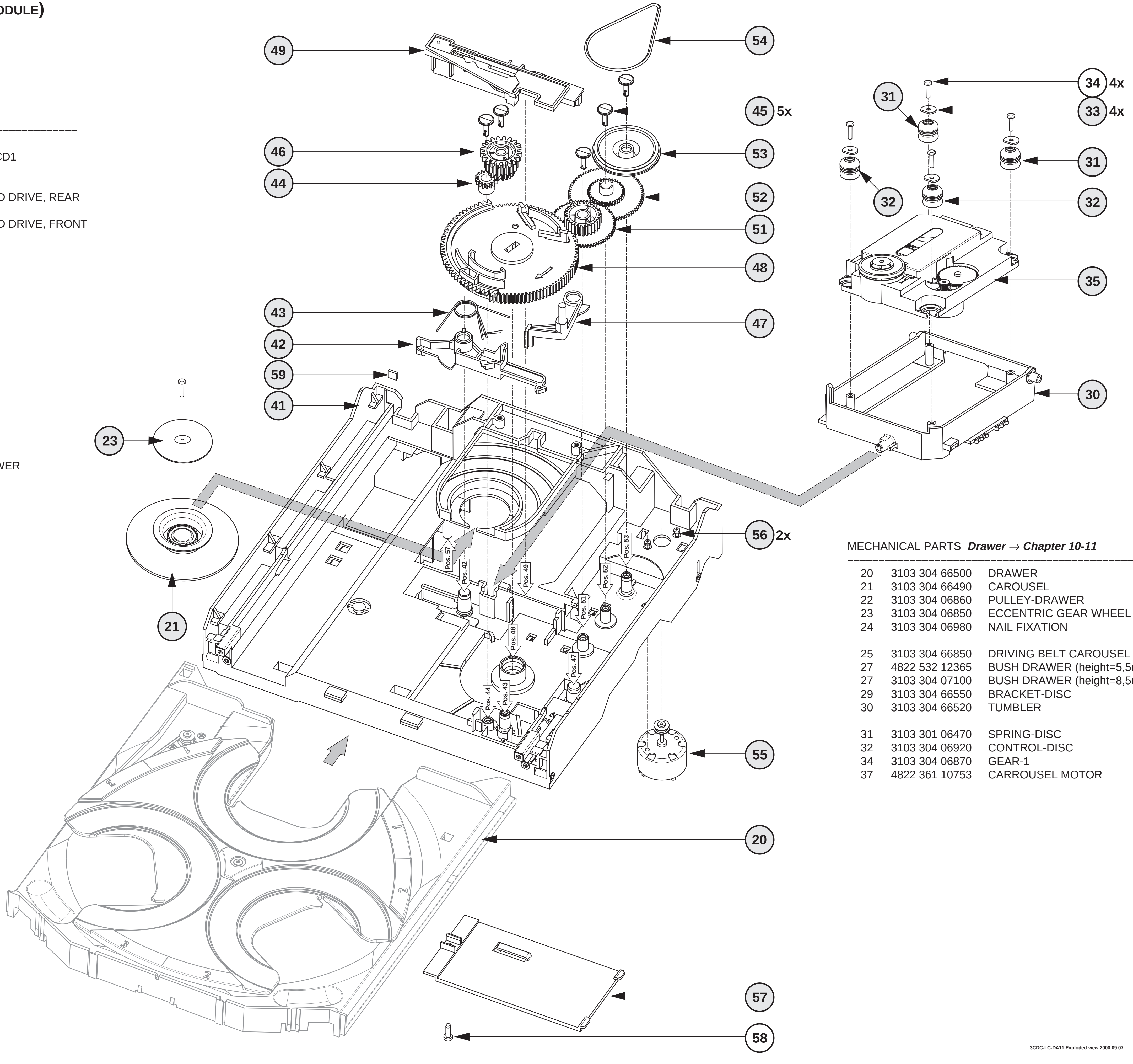
1805 E15
1875 D2
1878 E2
1880 F8
1881 E8
2829 D6
2830 C9
2831 B9
2832 A8
2852 H2
2853 G4
2854 B3
2858 A9
2860 A11
2861 B11
2862 B8
2863 B8
2864 B3
2865 C4
2867 A8
2872 G10
2873 D6
2875 E6
2876 C7
2877 F11
2878 F11
2881 F8
2882 B10
2893 F12
3700 H2
3705 G4
3706 G4
3707 G4
3708 H4
3711 G5
3712 B4
3713 G8
3714 F8
3715 G8
3716 B3
3717 B3
3718 G3
3730 G2
3731 G2
3732 G2
3733 G2
3734 H2
3740 A7
3741 A7
3742 B7
3743 B7
3744 A9
3746 B10
3750 B7
3751 C7
3752 A6
3753 A6
3809 B2
3814 D12
3831 G4
3851 D7
3858 A11
3859 B11
3860 B7
3861 B8
3864 A7
3865 A10
3866 A10
3868 B10
3869 B10
3871 F12
3872 C13
3874 C13
3875 C12
3876 C11
3877 F12
3878 E12
3879 D7
3880 E6
3881 E7
3882 D7
3883 D6
3884 D6
3885 D6
3886 E7
3887 D6
3888 F12
3890 F11
3891 F11
3893 F11
3898 F7
3899 D12
3905 C5
4803 B4
4811 A7
4812 B7
4876 D13
5802 B4
6871 F8
6872 E8
6873 E8
6874 G7
6875 F7
6876 D13
6877 D12
6878 E8
6879 G4
7805-A B9
7805-B A8
7812 G8
7871 C5
7873 D10
7874 C12
7875 D12
7876 G3
MP721 C8
MP722 E8
MP723 D8
MP724 D8
MP725 D8
MP726 D8
MP740 H14
MP741 G14
MP742 G14
MP801 E12
MP803 F10
MP804 G14
MP805 F13
MP806 F13
MP807 F14
MP808 F13
MP810 F13
MP811 F14
MP822 E3
MP823 E3
MP824 D4
MP825 D4
MP830 A7
MP832 G9
MP833 F14
MP835 F14
MP854 A13
MP856 E14
MP857 B13
MP863 C11
MP865 D11
MP866 E8
MP867 E8
MP868 F8
MP869 C12
MP871 D6
MP874 D12
MP881 G2
MP882 G2
MP886 G3
MP887 H5
MP888 G5
MP889 G5
MP890 B3
MP891 B5
MP892 B5
MP897 E13
MP898 E13
MP899 E14


3CDC-LLC
mainboard
part 2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H
digital out circuitry - 75Ω version (not on all versions)
from 7877 on part1
DOBM
3809 10R
2854 47n
2864 22p
3716 470R
5802 920927152B
3712 10R
COAX2
to 1805
COAX1
2865 22n
digital out circuitry (not for 75Ω Versions)
3809 470R
3717 1R
3712 10R
3716 470R
COAX2 to 1805
+5.6V
3864 100R
4.5V
2858 220u
GNDA
FROM 7877 ON PART 1
LP 3741 22K
LN 3740 22K
RP 3743 22K
RN 3742 22K
2832 100p
7805-B TDA1308T
2V
2.3V
2867 220p
3744 10K
4811
7805-A TDA1308T
2831 100p
2882 220p
3746 10K
3865 100R
2860 10u
3858 47K
3868 100R
2861 10u
3859 47K
3750 1K
3751 1K
3860 10K
2876 220u
2863 220p
3861 10K
2862 220p
2830 47n
to/from 7877 on part 1
3.2V SDA 0V
SICL
SILD
SDA
7874 BC847B
3876 100K
3V-5V log. Level Transformer
+3.3V
3872 10K
3874 10K
3875 10K
voltage stab.
7875 BC847B
3814 33R
4.2V
3.3V
4.1V
6877 BZX284-C3V9
3899 100R
4876
6876 BAS216
5.6V version only
+4V
+5V
+5.6V
+10V
5V(5.6V)
CAROUSEL-MOTOR
1876 8002 1875
POS1 rec
1882
RF-500TB
1883 POS rec
FE-ST-VK-N
1877 1878
8003
DIPMATE
RF-500TB
DRAWER-MOTOR
7871 TDA7073A
4.9V 5.1V 10V
OUT1-
VDD
2829 22n
3884 270R
3885 10K
3883 10K
3851 3R3
+10V
3882 47K
2873 47u
3887 220R
3879 100K
3881 100K
2875 10u
3880 3K9
3886 47K
changer control logic
7873 HEF4094BT
0V
STB
EN1
SRG8
6873 BAS216
6878 BAS216
6872 BAS216
6871 BAS216
1881 DRIVE UP/ DOWN
1880 TRAY POS
5.2V
3890 1K
3891 1K
3893 470R
3878 10K
2877 47p
2878 220p
2893 220p
3877 10K
3871 10K
3888 10K
220R 3898
6875 BZX284-C 5V1
2881 4u7
3714 10K
3713 22K
7812 BC847B
6874 BAS216
3715 100K
Output enable delay circuitry
2872 47n
to combi-board
1805
LEFT GNDA RIGHT +5V(+5.6V) GND +10V SW_INFO SHR_STR SHR_CL SICL DATA SILD GND PORE GND
BASIC VERSION (15 Pin)
COAX1/+3V COAX2/EBU EBU_GND GND
DIG. OUT (19 Pin)
SRDT DQSY uP_CLK GND
CD-TEXT (23 Pin)
to 7877 on part 1 PORE
from digital-out circuitry COAX1 COAX2 EBUGND
CD-Text circuitry (optional)
CD-TEXT INFO
DQSY ~3.3ms~ SCLK SRDT
only during TOC-reading
7876 LC89170M
EXCK SBSO SCOR WFCK MCK XMODE GND
VDD DQSY SRDT SCLK SW2 SW1 TEST
32 x 8 2 PORT RAM
CPU INTERF
CRC CHECK
TIMING & SYNC PROTECTION
RCK SUB SBSY SFSY CL11
to 7877 on part1
7.35KHz
11MHz
3730 33K
3731 10K
3732 470R
3733 470R
3734 470R
3700 470R
3718 4K7
2853 22n
3705 220R
3831 100R
6879 BZX284-C3V9
3711 10K
3706 470R
3707 470R
3708 470R
2852 47n
+5.6V
4V
...V DC voltages measured in PLAY MODE with following conditions: "+10V" = 10V "+5V" = 5V
EVM

EXPLODED VIEW (3CDC-LC MODULE)

MECHANICAL PARTS ***Loader → this page***

20	3103 304 66500	DRAWER
21	3140 114 29070	PRESSURE RING-MCD1
23	3140 111 21270	METAL RING-MCD1
30	3103 304 66560	SUPPORT
31	4822 529 10386	RUBBER DAMPER CD DRIVE, REAR
32	4822 529 10387	RUBBER DAMPER CD DRIVE, FRONT
33	3103 304 06970	WASHER
35	3103 309 05350	CD DRIVE MCD1B
41	3103 304 66480	FRAME
42	3103 304 66540	BRACKET-GUIDING
43	3103 301 06460	SPRING-GUIDING
44	3103 304 06890	GEAR-3
45	3103 304 06980	NAIL FIXATION
46	3103 304 06880	GEAR-2
47	3103 304 66530	BRACKET-LOAD
48	3103 304 06910	CAM
49	3103 304 66510	GUIDING
51	3103 304 06900	GEAR-4
52	3103 304 06870	GEAR-1
53	3103 304 06960	PULLEY-FRAME
54	3103 304 66910	DRIVING-BELT-DRAWER
55	4822 361 10753	TRAY MOTOR
56	4822 502 12548	SCREW M2,6X3,5
57	3103 304 69880	COVER-MCD1
59	4822 466 12146	RUBBER



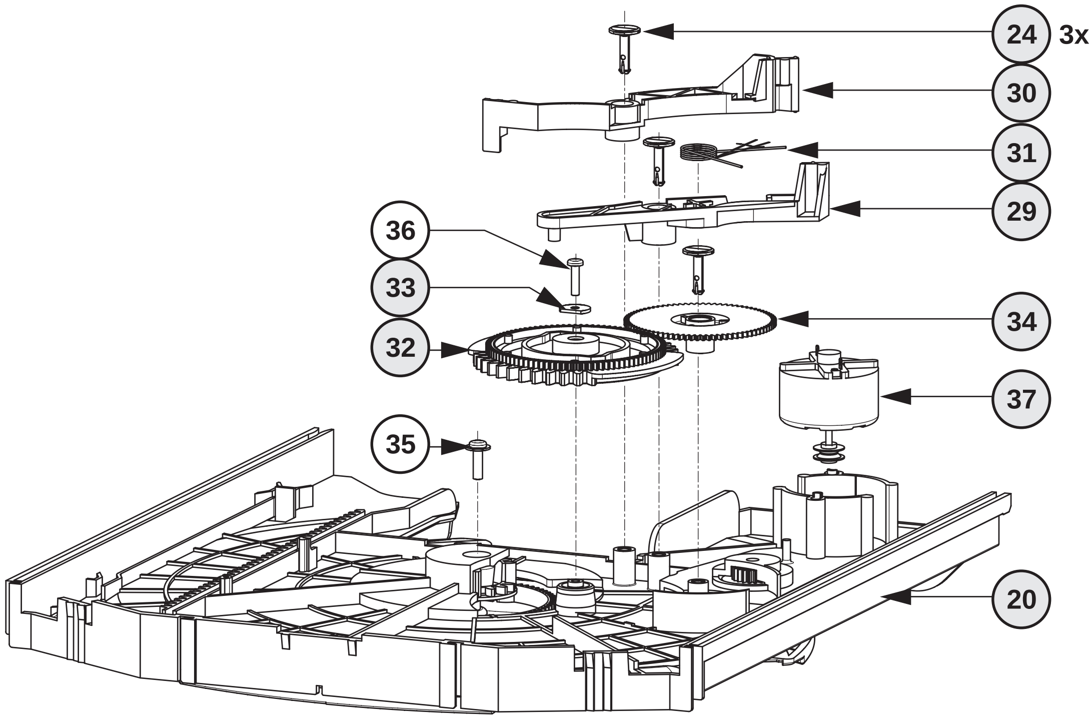
MECHANICAL PARTS ***Drawer → Chapter 10-11***

20	3103 304 66500	DRAWER
21	3103 304 66490	CAROUSEL
22	3103 304 06860	PULLEY-DRAWER
23	3103 304 06850	ECCENTRIC GEAR WHEEL
24	3103 304 06980	NAIL FIXATION
25	3103 304 66850	DRIVING BELT CAROUSEL
27	4822 532 12365	BUSH DRAWER (height=5,5mm,d=9,4mm)
27	3103 304 07100	BUSH DRAWER (height=8,5mm,d=16mm)
29	3103 304 66550	BRACKET-DISC
30	3103 304 66520	TUMBLER
31	3103 301 06470	SPRING-DISC
32	3103 304 06920	CONTROL-DISC
34	3103 304 06870	GEAR-1
37	4822 361 10753	CARROUSEL MOTOR

Ⓧ spare part
Ⓨ non spare part

3CDC-LC-DA11 Exploded view 2000 09 07

Drawer bottom view


24 3x
30
31
29
36
33
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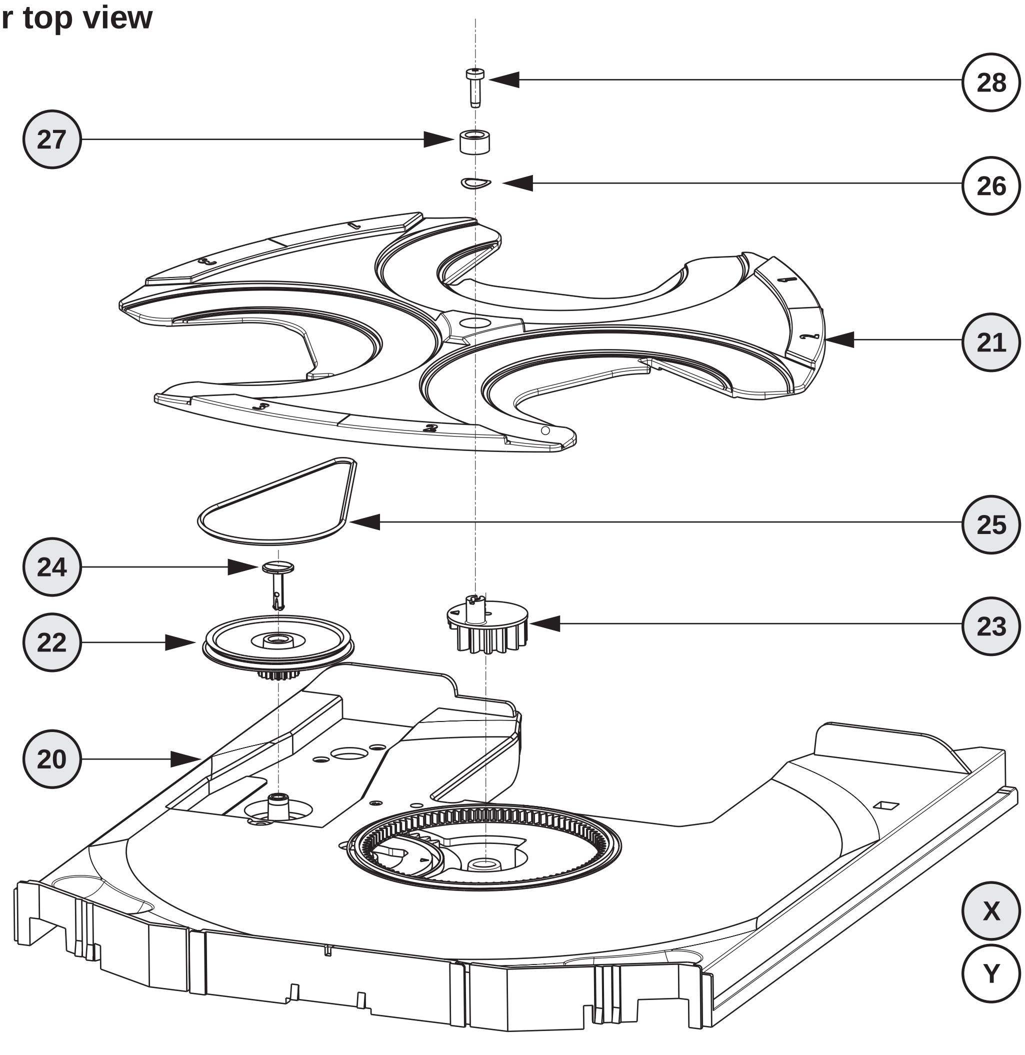
37
35
20

Drawer top view


28
27
26
21
25
24
23
22
20

X spare part

Y non spare part

3CDC-LC Drawer assy 1999 09 13

ELECTRICAL PARTSLIST 3CDC-LLC-MCD1 MODULE

MISCELLANEOUS

35	3103 309 05350	CD DRIVE MCD1B
37	4822 361 10753	CAROUSEL MOTOR
55	4822 361 10753	TRAY MOTOR
1800	2422 025 17389	FLEX FOIL CONNECTOR 16Pin
1805	4822 265 10979	FLEX FOIL CONNECTOR 15Pin
1805	4822 265 11545	FLEX FOIL CONNECTOR 19Pin
1875	4822 267 10958	FLEX FOIL CONNECTOR 5Pin
1876	2422 025 08332	FLEX FOIL CONNECTOR 5Pin
1880	4822 276 13503	SWITCH, Tray switch
1881	4822 276 13503	SWITCH, Drive UP/DOWN
1882	4822 276 13503	SWITCH, CD Pos.1 recognized
1883	4822 276 13503	SWITCH, valid CD Play position
8002	3103 308 91990	FLEX FOIL CABLE 5P, 200mm 1:n
8005	3103 308 92930	FLEX FOIL CABLE 16P 170mm 1:n

CAPACITORS

2800©	4822 122 33172	390pF	5%	50V
2801©	4822 126 13883	220pF	5%	50V
2802©	4822 122 33172	390pF	5%	50V
2803©	4822 126 13883	220pF	5%	50V
2804	4822 124 41751	47µF	20%	16V
2805©	4822 126 13883	220pF	5%	50V
2806©	4822 126 13883	220pF	5%	50V
2807©	5322 122 31863	330pF	5%	50V
2808©	4822 126 13883	220pF	5%	50V
2809	4822 124 40746	0,22µF	20%	63V
2810©	4822 126 10326	180pF	5%	
2811©	4822 126 13883	220pF	5%	50V
2812©	2222 867 15339	33pF	5%	50V
2813©	4822 126 14226	82pF		50V
2814©	2238 246 59858	450nF	20%	10V
2815©	4822 122 33172	390pF	5%	50V
2816©	4822 126 14247	1,5nF	10%	50V
2817©	4822 126 14249	560pF	10%	50V
2818©	4822 126 13344	1,5nF	5%	63V
2819©	5322 126 11578	1nF	10%	63V
2820©	4822 126 14305	100nF	10%	16V
2822©	5322 122 31866	6,8nF	10%	63V
2823©	3198 016 31510	150pF	10%	50V
2824©	5322 122 32654	22nF	10%	63V
2825©	4822 122 33891	3,3nF	10%	63V
2826	4822 124 12362	47µF	20%	4V
2828	4822 124 12362	47µF	20%	4V
2829©	3198 017 42230	22nF	10%	50V
2830©	4822 126 13751	47nF	10%	50V
2831©	4822 122 31765	100pF	5%	50V
2832©	4822 122 31765	100pF	5%	50V
2835©	3198 024 44730	47nF	5%	50V
2836©	3198 024 44730	47nF	5%	50V
2837	4822 124 40433	47µF	20%	25V
2838	4822 124 40248	10µF	20%	63V
2839	4822 124 40433	47µF	20%	25V
2840©	4822 126 14585	100nF	10%	50V
2841©	5322 126 10511	1nF	5%	50V
2842©	4822 126 14247	1,5nF	10%	50V
2844©	3198 016 31020	1nF	5%	25V
2850©	5322 126 11578	1nF	10%	63V
2851	4822 124 42383	220µF	20%	4V
2855©	4822 122 33172	390pF	5%	50V
2856©	4822 126 13691	27pF	1%	63V
2857©	5322 126 11583	10nF	10%	63V
2858	4822 124 12245	220µF	20%	16V

CAPACITORS

2860	4822 124 11947	10µF	20%	16V
2861	4822 124 11947	10µF	20%	16V
2862©	4822 126 13883	220pF	5%	50V
2863©	4822 126 13883	220pF	5%	50V
2865©	4822 126 14494	22nF	10%	25V
2867©	4822 126 13883	220pF	5%	50V
2872©	3198 024 44730	47nF	5%	50V
2873	4822 124 80231	47µF	20%	16V
2875	4822 124 11947	10µF	20%	16V
2876	4822 124 12245	220µF	20%	16V
2877©	4822 122 33777	47pF	5%	63V
2878©	4822 126 13883	220pF	5%	50V
2881	4822 124 40769	4,7µF	20%	100V
2882©	4822 126 13883	220pF	5%	50V
2885	4822 124 40769	4,7µF	20%	100V
2887©	4822 126 14585	100nF	10%	50V
2888	4822 124 80231	47µF	20%	16V
2891©	4822 126 14247	1,5nF	10%	50V
2893©	4822 122 33575	220pF	5%	50V
2894©	3198 017 44740	470nF	20%	10V
2895©	4822 126 14305	100nF	10%	16V
2896©	4822 126 14305	100nF	10%	16V
2897©	4822 126 14305	100nF	10%	16V

RESISTORS

3701©	4822 051 20479	47Ω	5%	0,1W
3702©	4822 051 20479	47Ω	5%	0,1W
3703©	4822 051 20479	47Ω	5%	0,1W
3704©	4822 117 12917	1Ω	5%	0,06W
3710©	4822 051 51831	18kΩ	5%	0,1W
3712©	4822 051 30109	10Ω	5%	0,06W
3713©	4822 051 30223	22kΩ	5%	0,06W
3714©	4822 051 30103	10kΩ	5%	0,06W
3715©	4822 117 13632	100kΩ	1%	0,06W
3716©	4822 051 30471	470Ω	5%	0,06W
3717©	4822 117 12917	1Ω	5%	0,06W
3719©	4822 051 30102	1kΩ	5%	0,06W
3720©	4822 051 20474	470kΩ	5%	0,1W
3721©	4822 051 20393	39kΩ	5%	0,1W
3723©	4822 051 30272	2,7kΩ	5%	0,06W
3724©	4822 117 12902	8,2kΩ	1%	0,06W
3725©	4822 051 30184	180kΩ	5%	0,06W
3730©	4822 051 20333	33kΩ	5%	0,1W
3740©	4822 051 20223	22kΩ	5%	0,1W
3741©	4822 051 20223	22kΩ	5%	0,1W
3742©	4822 051 20223	22kΩ	5%	0,1W
3743©	4822 051 20223	22kΩ	5%	0,1W
3744©	4822 051 30103	10kΩ	5%	0,06W
3746©	4822 051 30103	10kΩ	5%	0,06W
3750©	4822 051 30102	1kΩ	5%	0,06W
3751©	4822 051 30102	1kΩ	5%	0,06W
3789©	4822 051 30471	470Ω	5%	0,06W
3790©	4822 051 30561	560Ω	5%	0,06W
3791©	4822 117 12968	820Ω	5%	0,06W
3792©	4822 051 30332	3,3kΩ	5%	0,06W
3793©	4822 051 20471	470Ω	5%	0,1W
3794©	4822 051 30391	390Ω	5%	0,06W
3795©	4822 051 30222	2,2kΩ	5%	0,06W
3796©	4822 051 30332	3,3kΩ	5%	0,06W
3798©	4822 051 30102	1kΩ	5%	0,06W
3799©	4822 051 30102	1kΩ	5%	0,06W
3800©	4822 051 51831	18kΩ	5%	0,1W

ELECTRICAL PARTSLIST 3CDC-LLC-MCD1 MODULE

RESISTORS

3801 ©	4822 051 30103	10kΩ	5%	0,06W
3802 ©	4822 051 51831	18kΩ	5%	0,1W
3803 ©	4822 117 10833	10kΩ	1%	0,1W
3804 ©	4822 051 30103	10kΩ	5%	0,06W
3805 ©	4822 051 30103	10kΩ	5%	0,06W
3806 ©	4822 051 30103	10kΩ	5%	0,06W
3807 ©	4822 051 30103	10kΩ	5%	0,06W
3808 ©	4822 051 30103	10kΩ	5%	0,06W
3809 ©	4822 051 20471	470Ω	5%	0,1W
3811 ©	4822 051 51831	18kΩ	5%	0,1W
3812	4822 053 10228	2,2Ω	5%	1W
3813 ©	4822 117 13608	4,7Ω	5%	0,06W
3814 ©	4822 051 30339	33Ω	5%	0,06W
3815	4822 052 10478	4,7Ω	5%	NFR
3818 ©	4822 051 30222	2,2kΩ	5%	0,06W
3819 ©	4822 051 20471	470Ω	5%	0,1W
3820 ©	4822 051 30222	2,2kΩ	5%	0,06W
3821 ©	4822 051 30222	2,2kΩ	5%	0,06W
3822 ©	4822 051 30222	2,2kΩ	5%	0,06W
3825 ©	4822 051 20181	180Ω	5%	0,1W
3826 ©	4822 051 30333	33kΩ	5%	0,06W
3827 ©	4822 051 20273	27kΩ	5%	0,1W
3828 ©	4822 051 20223	22kΩ	5%	0,1W
3831 ©	4822 051 30101	100Ω	5%	0,06W
3832 ©	4822 051 30103	10kΩ	5%	0,06W
3833 ©	4822 051 30223	22kΩ	5%	0,06W
3834 ©	4822 051 20223	22kΩ	5%	0,1W
3835	4822 052 10478	4,7Ω	5%	NFR
3837 ©	4822 051 10102	1kΩ	2%	0,25W
3838 ©	4822 051 30102	1kΩ	5%	0,06W
3839 ©	4822 051 20124	120kΩ	5%	0,1W
3840 ©	4822 051 30124	120kΩ	5%	0,06W
3841 ©	4822 117 10833	10kΩ	1%	0,1W
3842 ©	4822 117 10833	10kΩ	1%	0,1W
3843 ©	4822 117 10834	47kΩ	1%	0,1W
3844 ©	4822 051 20392	3,9kΩ	5%	0,1W
3845 ©	4822 117 10833	10kΩ	1%	0,1W
3846 ©	4822 117 10834	47kΩ	1%	0,1W
3847 ©	4822 051 20562	5,6kΩ	5%	0,1W
3849 ©	4822 051 20334	330kΩ	5%	0,1W
3850 ©	4822 051 30103	10kΩ	5%	0,06W
3851	4822 052 10338	3,3Ω		NFR25
3852	4822 052 10228	2,2Ω	5%	0,33W
3853 ©	4822 051 20471	470Ω	5%	0,1W
3858 ©	4822 117 12925	47kΩ	1%	0,06W
3859 ©	4822 117 10834	47kΩ	1%	0,1W
3860 ©	4822 117 10833	10kΩ	1%	0,1W
3861 ©	4822 051 30103	10kΩ	5%	0,06W
3862 ©	4822 051 20121	120Ω	5%	0,1W
3863 ©	4822 117 11373	100Ω	1%	0,1W
3864 ©	4822 117 11373	100Ω	1%	0,1W
3865 ©	4822 051 30101	100Ω	5%	0,06W
3867 ©	4822 051 30121	120Ω	5%	0,06W
3868 ©	4822 051 30101	100Ω	5%	0,06W
3870 ©	4822 051 20472	4,7kΩ	5%	0,1W
3871 ©	4822 051 30103	10kΩ	5%	0,06W
3873 ©	4822 051 20471	470Ω	5%	0,1W
3875 ©	4822 051 30103	10kΩ	5%	0,06W
3876 ©	4822 117 13632	100kΩ	1%	0,06W
3877 ©	4822 051 30103	10kΩ	5%	0,06W
3878 ©	4822 051 30103	10kΩ	5%	0,06W
3879 ©	4822 117 10837	100kΩ	1%	0,1W

RESISTORS

3880 ©	4822 051 30392	3,9kΩ	5%	0,06W
3881 ©	4822 117 13632	100kΩ	1%	0,06W
3882 ©	4822 117 12925	47kΩ	1%	0,06W
3883 ©	4822 117 10833	10kΩ	1%	0,1W
3884 ©	4822 051 30271	270Ω	5%	0,06W
3885 ©	4822 117 10833	10kΩ	1%	0,1W
3886 ©	4822 117 12925	47kΩ	1%	0,06W
3887 ©	4822 051 30221	220Ω	5%	0,06W
3888 ©	4822 117 10833	10kΩ	1%	0,1W
3889 ©	4822 051 20471	470Ω	5%	0,1W
3890 ©	4822 051 30102	1kΩ	5%	0,06W
3891 ©	4822 051 30102	1kΩ	5%	0,06W
3892 ©	4822 051 20471	470Ω	5%	0,1W
3893 ©	4822 051 30471	470Ω	5%	0,06W
3894 ©	4822 051 30101	100Ω	5%	0,06W
3895 ©	4822 117 12971	15Ω	5%	0,06W
3898 ©	4822 051 30221	220Ω	5%	0,06W
3899 ©	4822 051 30101	100Ω	5%	0,06W
3900 ©	4822 117 12955	2,7kΩ	1%	0,1W
3901 ©	4822 117 10833	10kΩ	1%	0,1W
3904 ©	4822 117 13632	100kΩ	1%	0,06W
4800 ©	4822 051 20008	CHIP JUMPER 0805		
4801 ©	4822 051 20008	CHIP JUMPER 0805		
4802 ©	4822 051 20008	CHIP JUMPER 0805		
4803 ©	4822 051 30008	CHIP JUMPER 0603		
4804 ©	4822 051 20008	CHIP JUMPER 0805		
4805 ©	4822 051 30008	CHIP JUMPER 0603		
4806 ©	4822 051 20008	CHIP JUMPER 0805		
4807 ©	4822 051 20008	CHIP JUMPER 0805		
4808 ©	4822 051 20008	CHIP JUMPER 0805		
4811 ©	4822 051 20008	CHIP JUMPER 0805		
4814 ©	4822 051 20008	CHIP JUMPER 0805		
4817 ©	4822 051 20008	CHIP JUMPER 0805		
4818 ©	4822 051 20008	CHIP JUMPER 0805		
4819 ©	4822 051 20008	CHIP JUMPER 0805		
4820 ©	4822 051 20008	CHIP JUMPER 0805		
4821 ©	4822 051 20008	CHIP JUMPER 0805		
4822 ©	4822 051 20008	CHIP JUMPER 0805		
4823 ©	4822 051 20008	CHIP JUMPER 0805		
4824 ©	4822 051 30008	CHIP JUMPER 0603		
4825 ©	4822 051 30008	CHIP JUMPER 0603		
4826 ©	4822 051 20008	CHIP JUMPER 0805		
4828 ©	4822 051 20008	CHIP JUMPER 0805		
4829 ©	4822 051 20008	CHIP JUMPER 0805		
4830 ©	4822 051 20008	CHIP JUMPER 0805		
4831 ©	4822 051 20008	CHIP JUMPER 0805		
4832 ©	4822 051 30008	CHIP JUMPER 0603		
4833 ©	4822 051 20008	CHIP JUMPER 0805		
4834 ©	4822 051 20008	CHIP JUMPER 0805		
4835 ©	4822 051 20008	CHIP JUMPER 0805		
4838 ©	4822 051 30008	CHIP JUMPER 0603		
4840 ©	4822 051 20008	CHIP JUMPER 0805		
4841 ©	4822 051 30008	CHIP JUMPER 0603		
4842 ©	4822 051 20008	CHIP JUMPER 0805		
4844 ©	4822 051 20008	CHIP JUMPER 0805		
4845 ©	4822 051 20008	CHIP JUMPER 0805		
4846 ©	4822 051 20008	CHIP JUMPER 0805		
4847 ©	4822 051 20008	CHIP JUMPER 0805		
4848 ©	4822 051 20008	CHIP JUMPER 0805		
4850 ©	4822 051 20008	CHIP JUMPER 0805		
4876 ©	4822 051 20008	CHIP JUMPER 0805		

ELECTRICAL PARTSLIST 3CDC-LLC-MCD1 MODULE

COILS

1810	4822 242 73557	CERAMIC RES. 8,46MHz

DIODES

6871 ©	4822 130 11397	BAS316
6872 ©	4822 130 11397	BAS316
6873 ©	4822 130 11397	BAS316
6874 ©	4822 130 11397	BAS316
6875 ©	9340 548 52115	BZX284-C5V1
6877 ©	9322 129 34685	BZX284-C3V9
6878 ©	4822 130 11397	BAS316
6879 ©	9322 129 34685	BZX284-C3V9

TRANSISTORS

7802 ©	5322 130 60123	BC807-40
7808 ©	4822 130 60511	BC847B
7809 ©	4822 130 60511	BC847B
7810 ©	4822 130 60511	BC847B
7812 ©	4822 130 60511	BC847B
7874 ©	4822 130 60511	BC847B
7875 ©	4822 130 60511	BC847B

INTEGRATED CIRCUITS

7803 ©	5322 209 82941	LM358D, Dual Opamp
7805 ©	4822 209 33165	TDA1308T/N1
7806	4822 209 32852	TDA7073A/N2
7807	4822 209 32852	TDA7073A/N2
7871	4822 209 32852	TDA7073A/N2
7873 ©	5322 209 11306	HEF4094BT, SHIFT REGISTER
7877 ©	9352 641 80557	SAA7324H/M2B,“CD10“ SIGN.PROC.

Mini System **FW-C100/21/21M/22/30/34/37**

Service
Service
Service

Service Manual

COMPACT
DIGITAL AUDIO

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CLASS 1
LASER PRODUCT

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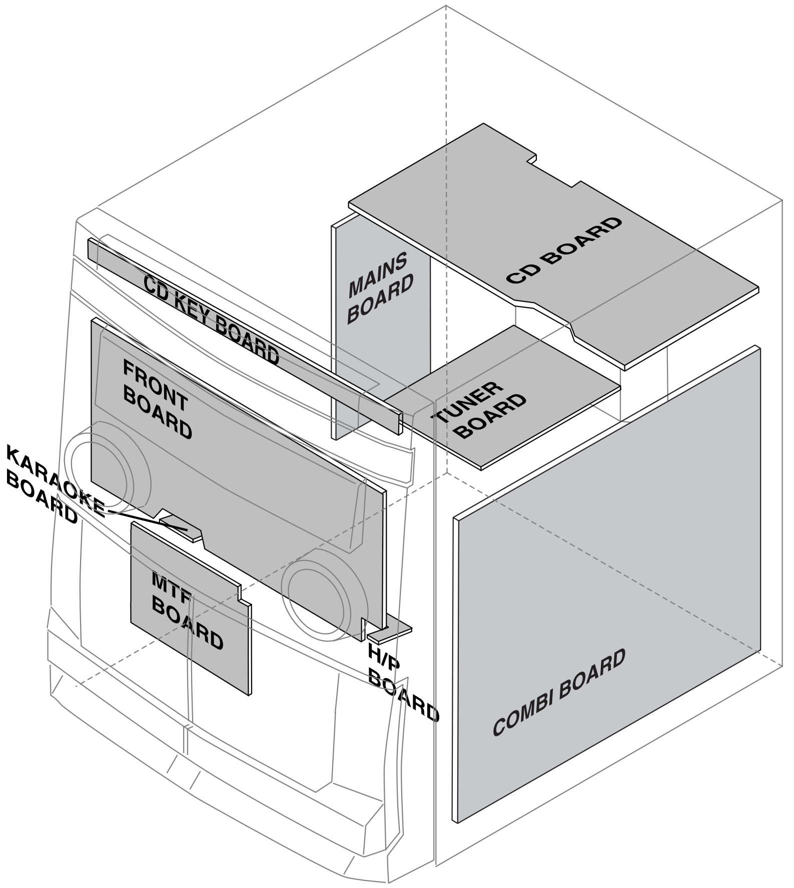
Published by KC 0034 Service Audio Printed in The Netherlands Subject to modification

GB 3139 785 22520

SPR 00 0001

PHILIPS

LOCATION OF PC BOARDS


CD BOARD
MAINS BOARD
CD KEY BOARD
FRONT BOARD
TUNER BOARD
KARAOKE-BOARD
MTF BOARD
H/P BOARD
COMBI BOARD

VERSION VARIATIONS:

Type /Versions:	FW-C100							
Features & Board in used:	/21	/21M	/22	/30	/33	/34	/37	
Dolby B								
Incredible Surround								
Karaoke								
News								
RDS								
Rotary Encoder (volume control)								
Jog Shuttle								
Voltage Selector	x	x						
Aux Input	x	x	x	x	x	x	x	
Digital Output								
Headphone Socket	x	x	x	x	x	x	x	
Line Output								
Subwoofer Output								
Surround Output								
Matrix Surround Loudspeakers								
Standby - Clock Display	x	x	x	x	x	x	x	
Standby - Dark								
Tuner board - ECO5 Sys	x	x		x	x	x	x	
Tuner board - Tuner 95			x					
Combi board 4W version			x	x	x	x	x	
Combi board 5W version	x	x						

SPECIFICATIONS

GENERAL:

Mains voltage : 110-127V/220-240V Switchable for /21/21M
120V for /37
220-230V for /22/34
230-240V for /30
Mains frequency : 50/60Hz
Power consumption : < 15W at Standby
< 30W Active
Clock accuracy : < 4 seconds per day
Dimension centre unit : 265 x 310 x 320mm

TUNER:

FM

Tuning range : 87.5-108MHz
65.81-74MHz for /34 [1]
Grid : 50kHz (& 30kHz for /34)
100kHz for /37
IF frequency : 10.7MHz ± 25kHz
Aerial input : 75Ω coaxial
300Ω click fit for /37
Sensitivity at 26dB S/N : < 7μV
Selectivity at 600kHz bandwidth : > 25dB [> 30dB]
Image rejection : > 25dB [> 60dB]
Distortion at RF=1mV, dev. 75kHz : < 3%
-3dB Limiting point : < 8μV
Crosstalk at RF=1mV, dev. 40kHz : > 18dB

MW

Tuning range : 531-1602kHz
530-1700kHz for /21/21M/37
Grid : 9kHz
10kHz for /21/21M/37
IF frequency : 450kHz ± 1kHz
Aerial input : Frame aerial
Sensitivity at 26dB S/N : < 4.0mV/M
Selectivity at 18kHz bandwidth : > 18dB
IF rejection : > 45dB [> 40dB]
Image rejection : > 28dB
Distortion at RF=50mV, m=80% : < 5%

LW

Tuning range : 153-279kHz
Grid : 3kHz
IF frequency : 450kHz ± 1kHz
Aerial input : Frame aerial
Sensitivity at 26dB S/N : [< 7.0mV/M]
Selectivity at 18kHz bandwidth : [> 30dB]
IF rejection : [> 25dB]
Image rejection : [> 35dB]
Distortion at RF=50mV, m=80% : [< 5%]

AMPLIFIER:

Output power (3Ω, 1 kHz, 10% THD) : 2 x 5W ± 1dB
Frequency response within -3dB : 50Hz-15kHz
Dynamic Bass Boost : DBB ON, DBB Off [2]
Digital Sound Control : Jazz, Techno, Optimal, Rock [2]
Headphone output at 32Ω : 25mW
Input sensitivity
Aux/Line-in : 700mV ± 2dB at 600Ω

CASSETTE RECORDER:

Number of track : 2 x 2 stereo
Tape speed : 4.76 cm/sec ± 2%
Wow and flutter : < 0.4% DIN
Fast-wind/rewind time C60 : 130 sec
Bias system : 75kHz ± 5kHz
Rec/Pb frequency response within 8dB : 80Hz - 12.5kHz
Signal to noise ratio (Type I) : > 48dBA

COMPACT DISC:

Measurement done at output conn. of the CDC module.
Frequency response within ± 1.5dB : 20Hz - 20kHz
Output level (in Vrms) : 550mV, Z_{out} = 100Ω
Signal/Noise ratio (A-weighted) : > 80dBA
Distortion at 1kHz : < 0.003%
Channel unbalance at 1kHz : ±1dB
Channel separation at 1kHz : > 60dB
De-emphasis : 0 or 15/50 mS (Switched by subcode on the disc)

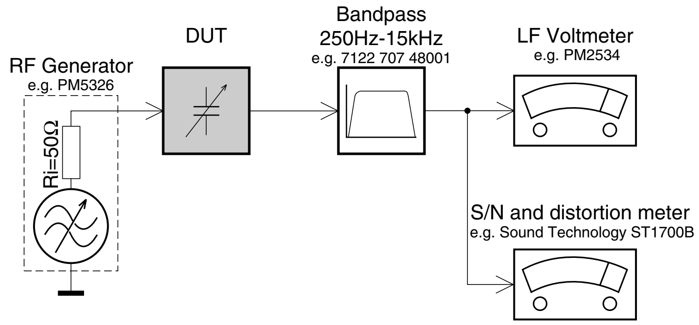
[....] Values indicated are for "Tuner 95 Board" only
{....} Values for /21/21M only

[1] Default setting is OFF, to switch on please refer page 3-4.

[2] Frequency response in each setting is software controlled.

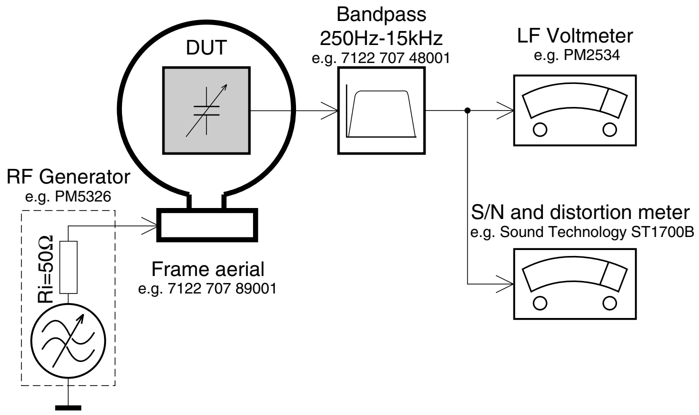
MEASUREMENT SETUP

Tuner FM


Bandpass
250Hz-15kHz
e.g. 7122 707 48001
DUT
LF Voltmeter
e.g. PM2534
RF Generator
e.g. PM5326
Ri=50Ω
S/N and distortion meter
e.g. Sound Technology ST1700B

Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilottone (19kHz, 38kHz).

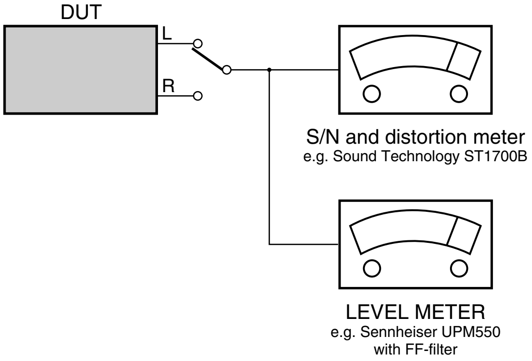
Tuner AM (MW,LW)


Bandpass
250Hz-15kHz
e.g. 7122 707 48001
DUT
LF Voltmeter
e.g. PM2534
RF Generator
e.g. PM5326
Ri=50Ω
S/N and distortion meter
e.g. Sound Technology ST1700B
Frame aerial
e.g. 7122 707 89001

To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday´s cage.
Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

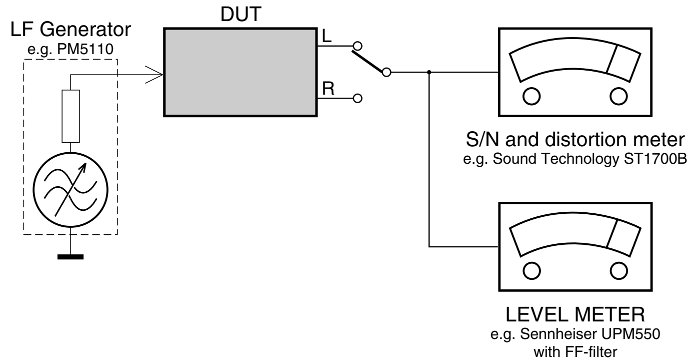
CD

Use Audio Signal Disc SBC429 4822 397 30184
(replaces test disc 3)


DUT
L
R
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071


DUT
LF Generator
e.g. PM5110
L
R
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6 - T20	4822 395 50145
Torx driver T10 extended	4822 395 50423

Cassette:

SBC419 Test cassette CrO2	4822 397 30069
SBC420 Test cassette Fe	4822 397 30071
MTT150 Dolby level 200nWb/M	4822 397 30271

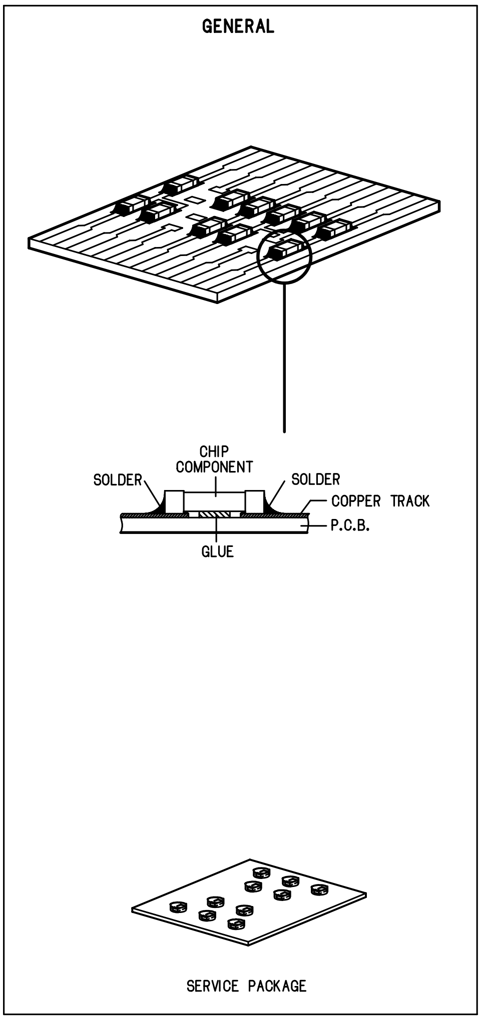
Compact Disc:

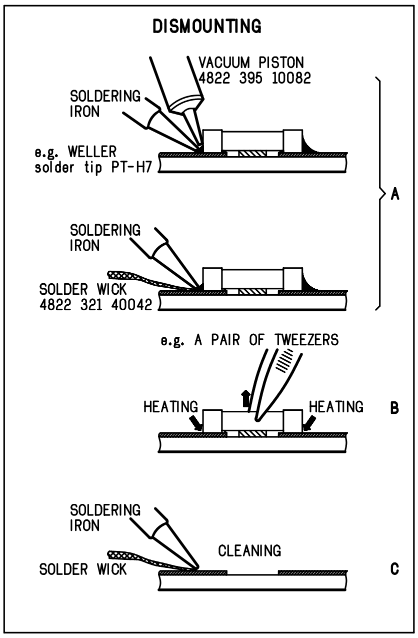
SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216

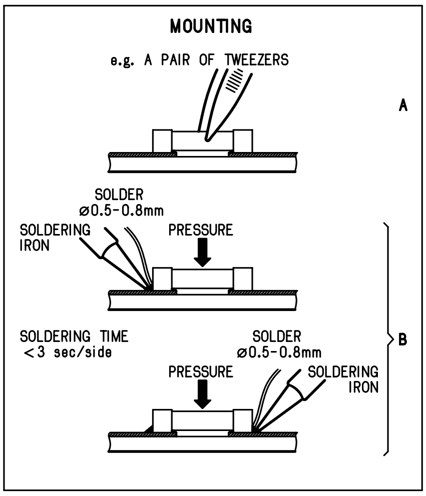
ESD Equipment:

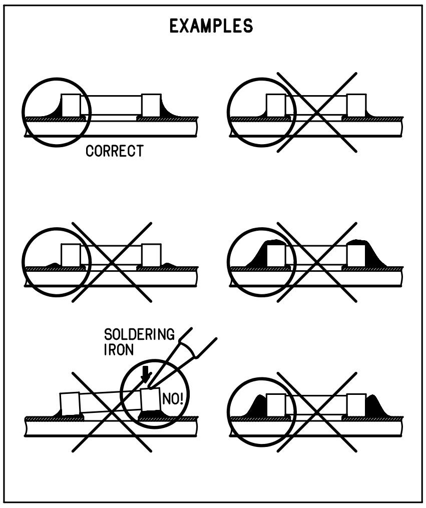
Anti-static table mat - large 1200x650x1.25mm	4822 466 10953
Anti-static table mat - small 600x650x1.25mm	4822 466 10958
Anti-static wristband	4822 395 10223
Connector box (1MΩ)	4822 320 11307
Extension cable (to connect wristband to conn. box)	4822 320 11305
Connecting cable (to connect table mat to conn. box)	4822 320 11306
Earth cable (to connect product to mat or box)	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 320 10671
Wristband tester	4822 344 13999

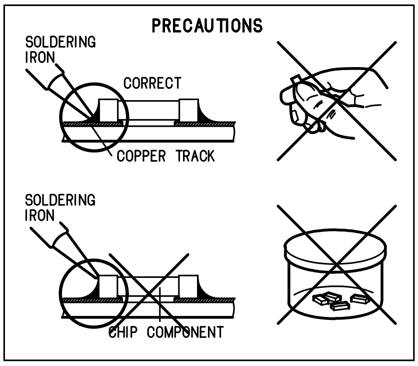
HANDLING CHIP COMPONENTS


GENERAL
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE


DISMOUNTING
VACUUM PISTON
4822 395 10082
SOLDERING IRON
e.g. WELLER
solder tip PT-H7
A
SOLDERING IRON
SOLDER WICK
4822 321 40042
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
CLEANING
SOLDER WICK
C


MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER
⌀0.5-0.8mm
SOLDERING IRON
PRESSURE
SOLDERING TIME
<3 sec/side
SOLDER
⌀0.5-0.8mm
PRESSURE
SOLDERING IRON
B


EXAMPLES
CORRECT
SOLDERING IRON
NO!


PRECAUTIONS
SOLDERING IRON
CORRECT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT

ESD

GB **WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

F **ATTENTION**

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

D **WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

NL **WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

I **AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

NL

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utiliséés les piéces de rechange identiques à celles spécifiées.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

CLASS 1
LASER PRODUCT
3122 110 03420

GB **Warning !**

Invisible laser radiation when open.
Avoid direct exposure to beam.

S **Varning !**

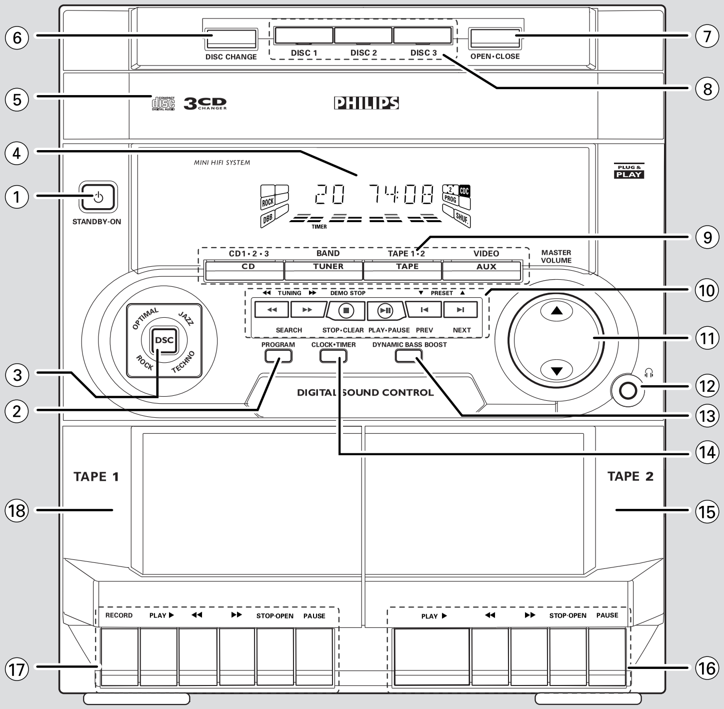
Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

SF **Varoitus !**

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

DK **Advarse !**

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.


⑥
⑤
④
①
③
②
⑱
⑰
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
DISC CHANGE
DISC 1
DISC 2
DISC 3
OPEN•CLOSE
3CD CHANGER
PHILIPS
MINI HIFI SYSTEM
PLUG & PLAY
STANDBY-ON
20 7408
TIMER
CD1•2•3
BAND
TAPE 1•2
VIDEO
CD
TUNER
TAPE
AUX
MASTER VOLUME
TUNING
DEMO STOP
PRESET
SEARCH
STOP•CLEAR
PLAY•PAUSE
PREV
NEXT
PROGRAM
CLOCK•TIMER
DYNAMIC BASS BOOST
OPTIMAL
JAZZ
DSC
ROCK
TECHNO
DIGITAL SOUND CONTROL
TAPE 1
TAPE 2
RECORD
PLAY ▶
◀◀
▶▶
STOP•OPEN
PAUSE
PLAY ▶
◀◀
▶▶
STOP•OPEN
PAUSE

English

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General Information

- ***The type plate (which contains the serial number) is located at the rear of the player.***
- ***Recording is permissible if copyright or other rights of third parties are not infringed.***
- ***This product complies with the radio interference requirements of the European Community.***

Environmental Information

All unnecessary packaging has been omitted. We have tried to make the packaging easy to separate into three materials: cardboard (box), polystyrene foam (buffer) and polyethylene (bags, protective foam sheet).

Your system consists of materials which can be recycled and reused if disassembled by a specialized company. Please observe the local regulations regarding the disposal of packaging materials, exhausted batteries and old equipment.

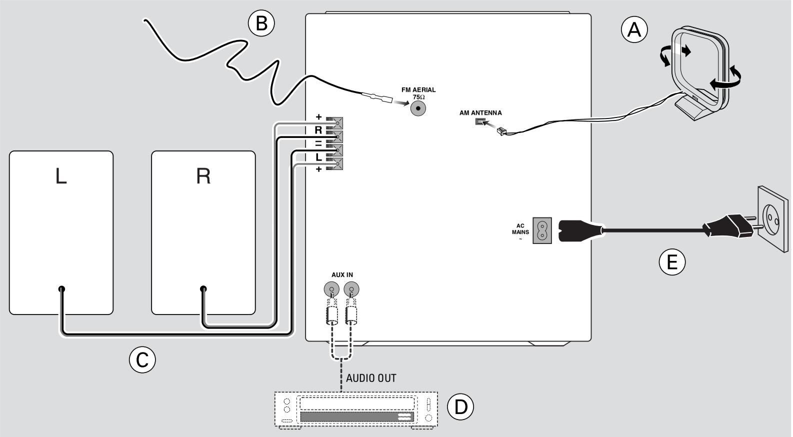
Supplied Accessories

- Remote control
- AM loop antenna
- FM wire antenna
- AC power cord

Safety Information

- Before operating the player, check that the operating voltage indicated on the typeplate (or the voltage indication beside the voltage selector) of your player is identical with the voltage of your local power supply. If not, please consult your dealer. The typeplate is located at the rear of your player.
- When the player is switched on, do not move it around.
- Place the player on a solid base (e.g. a cabinet).
- Place the player in a location with adequate ventilation to prevent internal heat build-up in your player. Allow at least 10 cm (4 inches) clearance from the rear and the top of the unit and 5 cm (2 inches) from the each side.
- Do not expose the player to excessive moisture, rain, sand or heat sources.
- Under no circumstances should you repair the player yourself, as this will invalidate the warranty!
- If the player is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lens of the disc unit inside the player. Should this occur, the CD player will not operate normally. Leave the power on for about one hour with no disc in the player until normal playback is possible.
- Electrostatic discharge may cause unexpected problems. See whether these problems disappear if you unplug the AC power cord and plug it in again after a few seconds.
- **To disconnect the player from the power supply completely, remove the AC power plug from the wall socket.**

Preparations



Rear Connections

Ⓐ AM Loop Antenna Connection

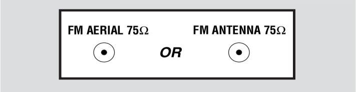
Connect the supplied loop antenna to the AM ANTENNA terminal. Place the AM loop antenna far away from the system and adjust its position for the best reception.

Ⓑ FM Wire Antenna Connection

Connect the supplied FM wire antenna to the FM AERIAL (FM ANTENNA) 75 Ω terminal. Adjust the position of the FM antenna for the best reception.

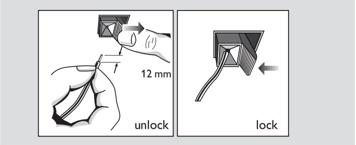
Outdoor Antenna

For better FM stereo reception, connect an outdoor FM antenna to the FM AERIAL (FM ANTENNA) 75 Ω terminal using a 75 Ω coaxial wire.



Ⓒ Speakers Connection

- Connect the right speaker to Front terminal R, with the colored wire to + and the black wire to –.
- Connect the left speaker to Front terminal L, with the colored wire to + and the black wire to –.
- Clip the stripped portion of the speaker wire as shown.



CAUTION:

– For optimal sound performance, it is recommended to use the supplied speakers.

– Do not connect more than one speaker to any one pair of +/– speaker terminal.

– Do not connect speakers with impedance lower than the speakers supplied. Please refer to SPECIFICATION section of this manual.

Preparation

Ⓓ **Connecting other equipment to your player**

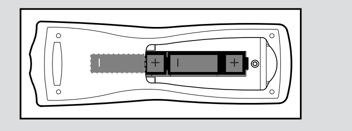
You can connect the audio left and right OUT terminals of a TV,VCR, Laser Disc player, DVD player or CD Recorder to the AUX IN terminals at the rear of the system.

Ⓔ **AC Power Supply**

After all other connections have been made, connect the AC power cord to the system and to the wall outlet.

Inserting batteries into the Remote Control

- Insert the batteries (Type R06 or AA) into the remote control as shown in the battery compartment.



- To avoid damage from possible battery leakage, remove dead batteries or batteries that will not be used for a long time.

Batteries contain chemical substances, so they should be disposed off properly.

Controls *(illustrations on page 3)*

Controls on the player and remote control

① **STANDBY-ON ⏻**
– switches the system to standby/on.

② **PROGRAM**
for CD .... to programme disc tracks.
for TUNER .... to programme preset radio stations.
for CLOCK .... to select 12 or 24 hour in clock setting mode.

③ **DSC (DIGITAL SOUND CONTROL)**
– to select the desired sound effect : OPTIMAL, JAZZ, ROCK or TECHNO.

④ **DISPLAY SCREEN**
– to view the current setting of the system.

⑤ **CD CHANGER TRAY**

⑥ **DISC CHANGE**
– to change disc(s).

⑦ **OPEN•CLOSE**
– to open or close the CD changer tray.

⑧ **DISC 1 / DISC 2 / DISC 3 (DISC DIRECT PLAY)**
– to select a disc tray for playback.

⑨ **SOURCE** – to select the following:
CD / (CD 1•2•3)
– to select CD mode. When disc playback is stopped, press to select disc tray 1, 2 or 3.
TUNER / (BAND)
– to select Tuner mode. When in tuner mode, press to select the waveband: FM, MW or LW.
TAPE / (TAPE 1• 2)
– to select Tape mode.
AUX (VIDEO)
– to select sound from an external source (e.g. TV, VCR, Laser Disc player, DVD player or CD Recorder).

⑩ **MODE SELECTION**
SEARCH ◀◀ ▶▶ (TUNING ◀◀ ▶▶)
for CD .... to search backward/forward.
for TUNER .... to tune to a lower or higher radio frequency.
for CLOCK .... to set the hour *(on the system only)*.

Controls

STOP•CLEAR ■
for CD .... to stop disc playback or to clear a programme.
for TUNER .... to stop programming *(on the system only)*.
for DEMO .... to start or stop demonstration mode *(on the system only)*.
for CLOCK .... to exit clock setting or cancel timer *(on the system only)*.
for PLUG & PLAY
.... to exit plug & play mode and return to standby mode *(on the system only)*.

PLAY ▶ / PAUSE ❚❚
for CD .... to start or interrupt playback.
for PLUG & PLAY
.... to initiate and start plug & play from standby/demo mode *(on the system only)*.

PREV ⏮ / NEXT ⏭(PRESET ▼▲)
for CD .... to skip to the beginning of the current, previous, or next track.
for TUNER .... to select a preset station in memory.
for CLOCK .... to set the minute *(on the system only)*.

⑪ **MASTER VOLUME ▼▲**
– to increase or decrease the volume.

⑫ 🎧
– to connect headphones.

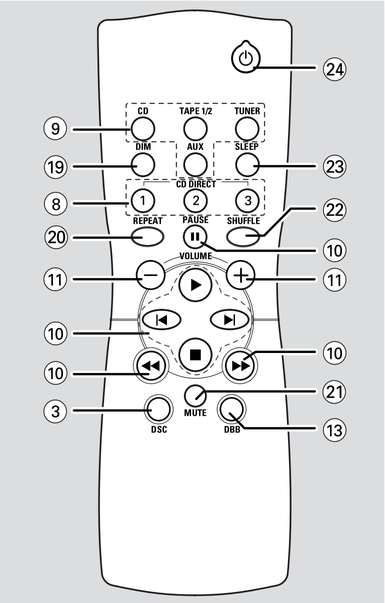
⑬ **DBB (DYNAMIC BASS BOOST)**
– to switch on bass boost to enhance bass response or to switch off bass boost.

⑭ **CLOCK•TIMER**
– to view the clock, set the clock or set the timer.

⑮ **TAPE DECK 2**

⑯ **TAPE DECK 2 OPERATION**
PLAY ▶ .... to start playback.
◀◀ .... to rewind the tape.
▶▶ .... to fast forward the tape.
STOP•OPEN…to stop playback or to open the tape door.
PAUSE .... to interrupt playback.

⑰ **TAPE DECK 1 OPERATION**
RECORD .... to start recording.
PLAY ▶ .... to start playback.
◀◀ .... to rewind the tape.
▶▶ .... to fast forward the tape.
STOP•OPEN…to stop playback/recording or to open the tape door.
PAUSE .... to interrupt playback or recording.



⑱ **TAPE DECK 1**

⑲ **DIM**
– to select different brightness for the display screen : DIM 1, DIM 2, DIM 3 or DIM OFF.

⑳ **REPEAT**
– to repeat a disc track, a disc, or all available discs.

㉑ **MUTE**
– to switch off the sound temporarily.

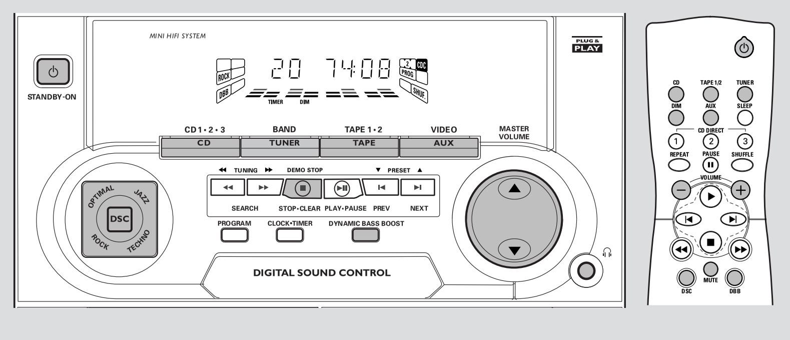
㉒ **SHUFFLE**
– to play all the available discs and their tracks in random order.

㉓ **SLEEP**
– to switch the system to standby mode at a selected time.

≤ ⏻
– to switch the system to standby mode.

Notes for remote control:
– First select the source you wish to control by pressing one of the source select keys on the remote control (e.g. CD ,TUNER, etc.).
– Then select the desired function (▶, ⏮, ⏭, etc.).

Operating the System


MINI HIFI SYSTEM
STANDBY-ON
CD 1 • 2 • 3
BAND
TAPE 1 • 2
VIDEO
CD
TUNER
TAPE
AUX
MASTER VOLUME
PLUG & PLAY
TUNING
DEMO STOP
PRESET
SEARCH
STOP•CLEAR
PLAY•PAUSE
PREV
NEXT
PROGRAM
CLOCK•TIMER
DYNAMIC BASS BOOST
OPTIMAL
JAZZ
DSC
ROCK
TECHNO
DIGITAL SOUND CONTROL
TAPE 1/2
TUNER
DIM
AUX
SLEEP
CD DIRECT
REPEAT
PAUSE
SHUFFLE
VOLUME
MUTE
DBB

Important:
Before you operate the system, complete the preparation procedures.

Plug and Play

The system provides PLUG and PLAY feature that allows you to store all available radio stations automatically upon power up. ***If PLUG and PLAY has been installed beforehand, it will go to standby or demonstration mode after 5 seconds.***

1 Press and hold **PLAY** *(on the system only)* for 5 seconds; when the system is in standby or demonstration mode.

- If the PLUG and PLAY has not been installed before, you can access this feature by switching on the system from the main power outlet.
  ➜ "AUTO INSTALL - PRESS PLAY" will be displayed.

2 Press **PLAY** to start installation.
➜ "INSTALL" will be displayed and followed by "TUNER" and then "AUTO".
➜ The **PROGRAM** starts flashing.
➜ PLUG and PLAY will start searching for all radio stations on FM band and then followed by radio stations on MW and LW bands respectively.
➜ All available radio stations with sufficient signal strength will be stored. Up to 40 presets may be stored.
➜ The last preset radio station will appear on the display when PLUG and PLAY is completed.

- To exit without storing the PLUG and PLAY, press ■ button *(on the system only)*.

Notes:
– PLUG and PLAY will be reinitiated again during the next power up if :
i) PLUG and PLAY installation was not completed.
ii) No stereo frequency being detected during PLUG and PLAY, "CHECK ANTENNA" will be displayed.
– You can store any radio stations manually or automatically after PLUG and PLAY.
– When PLUG and PLAY is used, all previously stored radio stations will be replaced.
– During PLUG and PLAY, if no button is pressed within 15 seconds, the system will go to demonstration mode (if demonstration mode is enable)

Demonstration mode

The system has a demonstration mode that shows the various features offered by the system.

To disable the demonstration mode

- Press and hold ■ *(on the system only)* for **5 *seconds*** when the system is in demonstration mode.
  ➜ "DEMO OFF" is displayed.
  ➜ The system will switch to standby mode.

Operating the System

To enable the demonstration mode

- Press and hold ■ *(on the system only)* for **5 *seconds*** when the system is in standby mode.
  ➜ The demonstration will begin.

Notes:
– If the demonstration mode has not been disabled, it will resume 5 seconds later after the system switches to standby mode.
– When the system is switched on from the main power outlet, the CD changer tray may open and close again to initialize the set.
– Even though the AC power cord is removed from and reconnected to the wall socket, the demonstration will remain off until it is switched on again.

Switching the system ON

- Press **CD**, **TUNER**, **TAPE** or **AUX**.
- Press **STANDBY-ON** in demo.

You can also switch on the system by pressing any one of the CD DIRECT PLAY buttons *(on system only)*.

Switching the system to standby mode

- Press **STANDBY-ON** or ⏻ on the remote control.
  ➜ The system will switch to standby mode.

Selecting the Source

- Press the respective source selection button: **CD**, **TUNER**, **TAPE** or **AUX**.
  ➜ The display indicates the selected source.

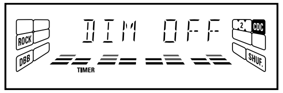
Note:
– For an external source, make sure you have connected the audio left and right OUT terminals of the external equipment (TV, VCR, Laser Disc player, DVD player or CD Recorder) to the AUX IN terminals.

DIM mode *(only on remote control)*

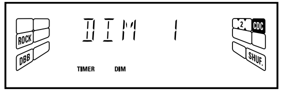
You can select the desired brightness for the display.

- Press **DIM** to select DIM 1, DIM 2, DIM 3 or DIM OFF display mode.
  ➜ The **DIM** display lights up.
  ➜ "DIM 1", "DIM 2", "DIM 3" or "DIM OFF" will be displayed depending on the mode selected.

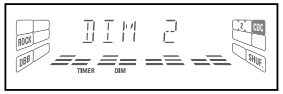
DIM OFF - normal brightness with Volume Indicator On


DIM OFF
ROCK
DBB
TIMER
CDC
SHUF

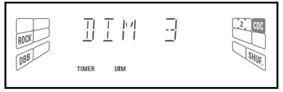
DIM 1 - normal brightness with Volume Indicator Off


DIM 1
ROCK
DBB
TIMER
DIM
CDC
SHUF

DIM 2 - half brightness with Volume Indicator On


DIM 2
ROCK
DBB
TIMER
DIM
CDC
SHUF

DIM 3 - half brightness with Volume Indicator Off


DIM 3
ROCK
DBB
TIMER
DIM
CDC
SHUF

Operating the System

Sound Control

VOLUME ADJUSTMENT

Press **MASTER VOLUME** ▲ or ▼ to increase or decrease the sound level.

For Personal Listening

Connect the headphones plug to the 🎧 socket at the front of the system. The speakers will be muted.

DIGITAL SOUND CONTROL (DSC)

The DSC feature enables you to enjoy special sound effects that have preset equalizer settings, providing the best music reproduction.

- Press **DSC** to select OPTIMAL, JAZZ, ROCK or TECHNO.
  ➜ "OPTIMAL, JAZZ, ROCK or TECHNO" and the respective flag will be displayed.

Note:

– When "OPTIMAL" sound is selected DBB will be switched on automatically.

DYNAMIC BASS BOOST (DBB)

The DBB mode enhances the bass response.

- Press **DBB** to switch on bass response.
  ➜ "DBB ON" and the DBB flag will be displayed.

To switch off DBB

- Press **DBB** again.
  ➜ "DBB OFF" will be displayed.

Note:

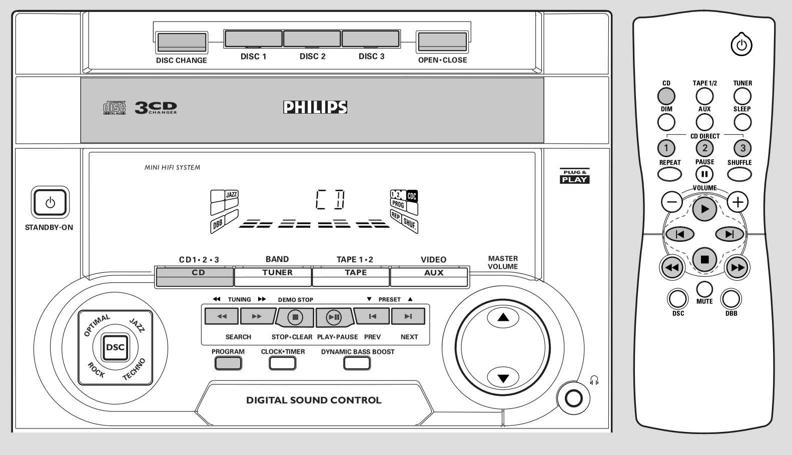
– Some discs or tapes might be recorded in high modulation, which causes a distortion at high volume. If this occurs, switch off DBB or reduce the volume.

MUTE *(only on remote control)*

This feature allows you to temporarily switch off the sound of the system without switching off the system when you require a moment of silence.

- Press **MUTE** on the remote control to switch off the sound.
  ➜ "MUTE" and the MUTE flag will be displayed.
- Press **MUTE** again on the remote control or increase the **MASTER VOLUME** to switch on the sound.

Compact Disc


DISC CHANGE
DISC 1
DISC 2
DISC 3
OPEN•CLOSE
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PHILIPS
MINI HIFI SYSTEM
STANDBY-ON
PLUG & PLAY
CD
JAZZ
DBB
CD1•2•3
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VIDEO
MASTER VOLUME
CD
TUNER
TAPE
AUX
TUNING
DEMO STOP
PRESET
SEARCH
STOP•CLEAR
PLAY•PAUSE
PREV
NEXT
PROGRAM
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DYNAMIC BASS BOOST
DIGITAL SOUND CONTROL
OPTIMAL
JAZZ
ROCK
TECHNO
DSC
CD
TAPE 1/2
TUNER
DIM
AUX
SLEEP
CD DIRECT
1
2
3
REPEAT
PAUSE
SHUFFLE
VOLUME
DSC
MUTE
DBB

Warning!

1) This system is designed for conventional discs. Do not use any accessories such as disc stabilizer rings or disc treatment sheets, etc., which may damage the disc mechanism.

2) Do not load more than one disc into each tray.

3) When the CD changer is loaded with discs, do not turn over or shake the system. This may jam the changer.

You may load three discs in the CD changer for continuous playback without interruption.

Discs for playback

This system can play all digital audio disc, finalized digital audio CD-Recordable and finalized digital audio CD-Rewritable format discs.

COMPACT disc DIGITAL AUDIO

COMPACT disc DIGITAL AUDIO Recordable

COMPACT disc DIGITAL AUDIO ReWritable

Loading the CD Changer

1 Press **CD** to select CD mode.

2 Press **OPEN•CLOSE**.
➜ The CD changer tray slides out.

3 Load a disc with the printed side up in the right tray.

- You can load another disc in the left tray.
- To load the third disc, press the **DISC CHANGE** button.
  ➜ The CD changer tray will rotate until the empty tray is ready for loading.

4 Press **OPEN•CLOSE** to close the CD changer tray.
➜ A lit on the respective CD numeric flag indicates that its corresponding disc(s) is loaded in the disc tray.

Note:

– To ensure good system performance, wait until the CD changer completely reads the disc(s) before proceeding.

Disc Direct Play

- You can play a disc directly by pressing the **DISC 1, DISC 2** or **DISC 3** button. The CD player will stop at the end of playback of the selected disc.
  ➜ The corresponding CD numeric flag starts to flash.

Playing a Disc

1 Press ▶ to start playback.
➜ A flashing on the CD numeric flag indicates the selected disc.
➜ The track number and elapsed playing time of the current track appear on the display.

- To interrupt playback, press ❚❚ .
➜ The playing time flashes.
- To resume playback, press ▶ again.

2 To stop playback, press ■ .

Note:
– All the available discs will play once, then stop.

Disc Change

You can change the outer two discs while the third inner disc is stopped or is playing.

1 Press **DISC CHANGE**.
➜ The CD changer tray slides out.

2 Replace the discs in the left and right disc trays.

- If you wish to change the inner disc during playback, press **DISC CHANGE** again.
➜ "DISC CHANGE" will be displayed.
➜ The disc will stop playing.
➜ The CD changer tray will close to retrieve the inner disc and then open again with the inner disc accessible.

3 Press **OPEN•CLOSE** to close the CD changer tray.

Selecting a desired track

Selecting a desired track when playback is stopped

1 Press |◀ or ▶| until the desired track appears on the display.

2 Press ▶ to start playback.
➜ The selected track number and elapsed playing time appear on the display.

Selecting a desired track during playback

- Press |◀ or ▶| until the desired track appears on the display.
➜ The selected track number and elapsed playing time appear on the display.
- If you press |◀ once it will skip to the beginning of the current track and play the track again.

Note:
– Pressing |◀ during shuffling can only skip to the beginning of the current track.

Searching for a particular passage during playback

- Press and hold ◀◀ or ▶▶ until the desired passage is located.
➜ The volume will be reduced.
- Play returns to normal when ◀◀ or ▶▶ is released.

Programming Tracks

Programming tracks of a loaded disc is possible when playback is stopped. The display will indicate the total tracks stored in the programme. Up to 40 tracks can be stored in the memory in any order. When 40 tracks are stored and you attempt to store another track, the display will show "FULL".

1 Load the desired discs in the disc trays.

2 Press **PROGRAM** to start programming.
➜ The **PROG** flag starts flashing.
➜ A flashing on the CD numeric flag indicates the selected disc.

3 Press the **CD** (CD 1•2•3) or **DISC 1/2/3** button to select the disc.

4 Press |◀ or ▶| to select the desired track.

5 Press **PROGRAM** to store the track.

- Repeat steps ***3*** to ***5*** to store other discs and tracks.

6 Press ■ once to end programming.
➜ The total number of tracks programmed and total playing time appear on the display.

Notes:
– If the total playing time is more than "99:59" or if one of the programmed tracks has a number greater than 30, then "--:--" appears on the display instead of the total playing time.
– If the system is reading the discs, programming is not possible, "READING" will be displayed and followed by "DISC X". "X" is the current read disc number.
– During programming, if no button is pressed within 20 seconds, the system will exit programme mode automatically.
– "SELECT A DISC" will be displayed when programming an empty disc slot.

Reviewing the programme

Reviewing of the programme is possible only when playback is stopped.

- Press |◀ or ▶| repeatedly to review the programmed tracks.
- Press ■ to exit review mode.

Playing the programme

1 Press ▶ to start programme playback.
➜ "PLAY PROGRAM" will be displayed.
➜ The track number and elapsed playing time of the current track will appear on the display.

- If you press **REPEAT** during programme playback, the current track or all programmed tracks will be played repeatedly.
➜ "TRACK" or "PROGRAM" will be displayed.
➜ The **REP** and **PROG** flags appear on the display.

2 Press ■ to stop programme playback.

Notes:
– If you press any of the DISC DIRECT PLAY buttons, the system will play the selected disc and the stored programme will be ignored temporarily. The PROG display also will disappear temporarily from the display. It will reappear when playback of the selected disc ends.
– REPEAT DISC mode will be cancelled when programme playback begins.

Erasing the programme *(when playback is stopped)*

- Press ■.
➜ "PROGRAM CLEARED" will be displayed.

Note:
– The programme will be erased when the system is disconnected from the power supply or when the CD changer tray is opened.

Shuffle *(only on remote control)*

In shuffle mode, the system plays all the available discs and their tracks in random order. Shuffle may be used also when tracks are programmed.

To shuffle all the discs and tracks

1 Press **SHUFFLE**.
➜ "SHUFFLE" will be displayed.
➜ The **SHUF** flag and the track selected at random appear on the display.

- The discs and the tracks will be played in random order until you press ■ .
- If you press **REPEAT** during shuffling, the current track or all available discs will be played repeatedly.
➜ "TRACK" or "ALL DISC" will be displayed.
➜ The **REP** and **SHUF** flags appear on the display.

2 Press **SHUFFLE** again to resume normal playback.
➜ The **SHUF** flag disappears from the display.

Note:
– REPEAT DISC mode will be cancelled when shuffle is selected.

Repeat *(only on remote control)*

You can play the current track, a disc or all available discs repeatedly.

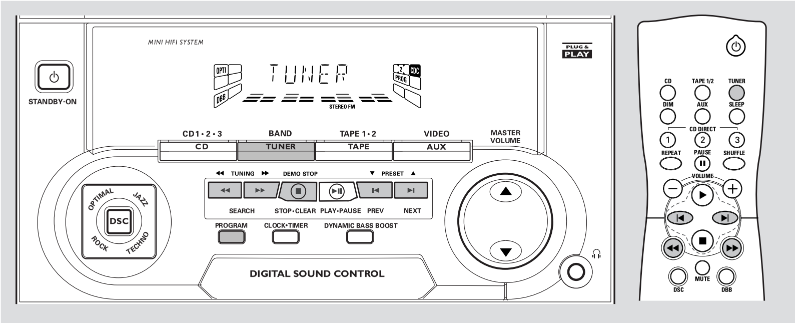
1 Press **REPEAT** on the remote control to select the various repeat modes.
➜ "TRACK", "DISC", "ALL DISC" or "OFF" will be displayed.
➜ The **REP** flag appears on the display.

- The selected track, selected disc or all available discs will now be played repeatedly until you press ■ .

2 Press **REPEAT** until the "OFF" mode is displayed to resume normal playback.
➜ The **REP** flag disappears from the display.

Notes:
– REPEAT DISC mode is not available during programme play or shuffle mode.
– You can also repeat shuffling a programme.
i) "TRACK" or "PROGRAM" will be displayed.
ii)The REP, PROG, and SHUF flags appear on the display.

Tuner


STANDBY-ON
MINI HIFI SYSTEM
TUNER
STEREO FM
PLUG & PLAY
CD1 • 2 • 3
CD
BAND
TUNER
TAPE 1 • 2
TAPE
VIDEO
AUX
MASTER VOLUME
OPTIMAL
JAZZ
DSC
ROCK
TECHNO
TUNING
DEMO STOP
PRESET
SEARCH
STOP • CLEAR
PLAY • PAUSE
PREV
NEXT
PROGRAM
CLOCK • TIMER
DYNAMIC BASS BOOST
DIGITAL SOUND CONTROL
CD
TAPE 1/2
TUNER
DIM
AUX
SLEEP
CD DIRECT
REPEAT
PAUSE
SHUFFLE
VOLUME
MUTE
DSC
DBB

Note:
– For 'PLUG & PLAY' feature, please refer to page 11.

Tuning to radio stations

1 Press **TUNER** (BAND) to select TUNER mode.
➜ "TUNER" will be displayed.
A few seconds later, the current radio frequency will be displayed.
2 Press **TUNER** (BAND) again to select the desired waveband : FM, MW or LW.
3 Press ◀◀ or ▶▶ for more than one second, then release.
➜ The display will show "SEARCH" until a radio station with sufficient signal strength is found.
- Repeat this procedure until the desired station is reached.
- To tune to a weak station, briefly press ◀◀ or ▶▶ repeatedly until the display shows the desired frequency and/or when the best reception has been obtained.

Storing Preset Stations

You can store up to 40 radio stations in the memory. When a preset radio station is selected, the preset number appears next to the frequency on the display.

Automatic programming

1 Press **TUNER** (BAND).
2 Press **PROGRAM** for more than one second.
➜ The PROG flag starts flashing and "AUTO" will be displayed.
➜ The system will search for every available station in the FM waveband first, MW and then search the LW waveband.
➜ All available stations will be stored automatically. The frequency and preset number will be displayed briefly.
➜ The system will stop searching when all the available radio stations are stored or when the memory for 40 preset radio stations is used.
➜ The system will remain tuned to the last stored preset radio station.

Tuner

Notes:
– You can cancel the automatic programming by pressing PROGRAM or ■ (on the system only).
– If you want to reserve a section of preset numbers, for example preset numbers 1 to 9, select preset 10 before starting automatic programming, only the preset numbers 10 to 40 will be programmed.

Manual programming

1 Press **TUNER** (BAND).
2 Press **TUNER** (BAND) again to select the desired waveband : FM, MW or LW.
3 Press **PROGRAM** for less than one second.
➜ The PROG flag starts flashing.
➜ The next available preset number will be displayed for selection.
4 Press ◀◀ or ▶▶ to tune to the desired frequency.
- If you wish to store the radio station to another preset number, press ▼ or ▲ to select the desired preset number.

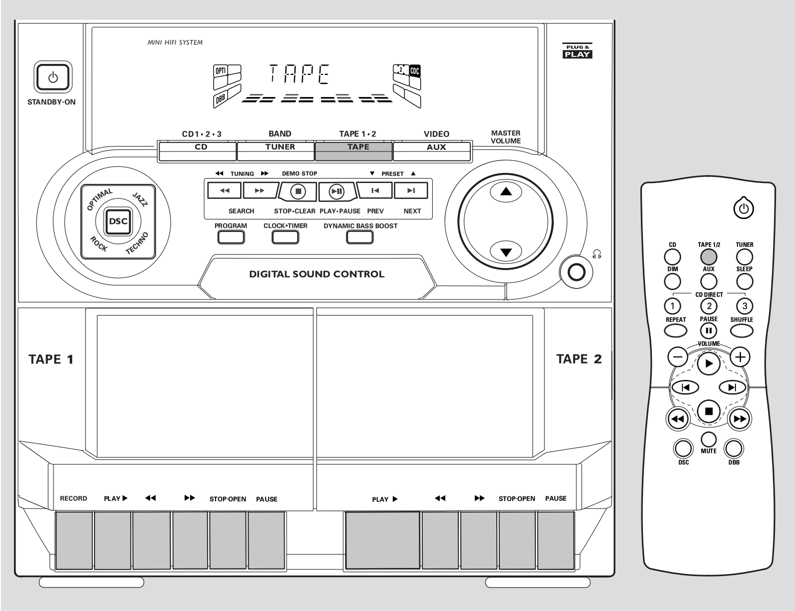
5 Press **PROGRAM** again.
➜ The PROG flag disappears and the radio station will be stored.
- Repeat ***steps 3 – 5*** to store other preset radio stations.

Notes:
– When 40 radio stations are stored and you attempt to store another radio station, the display will show "FULL". If you want to change an existing preset number, repeat steps 3 – 5.
– You can cancel manual programming by pressing ■ (on the system only).
– During programming, if no button is pressed within 20 seconds, the system will exit programme mode automatically.

Tuning to Preset Radio Stations

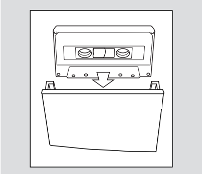
- Press ▼ or ▲ to select the desired preset number.
➜ The preset number, radio frequency, and waveband appear on the display.

Tape


MINI HIFI SYSTEM
PLUG & PLAY
STANDBY-ON
TAPE
CD1•2•3
BAND
TAPE 1•2
VIDEO
CD
TUNER
TAPE
AUX
MASTER VOLUME
TUNING
DEMO STOP
PRESET
SEARCH
STOP•CLEAR
PLAY•PAUSE
PREV
NEXT
PROGRAM
CLOCK•TIMER
DYNAMIC BASS BOOST
OPTIMAL
JAZZ
DSC
ROCK
TECHNO
DIGITAL SOUND CONTROL
TAPE 1
TAPE 2
RECORD
PLAY ▶
STOP-OPEN
PAUSE
CD
TAPE 1/2
TUNER
DIM
AUX
SLEEP
CD DIRECT
REPEAT
PAUSE
SHUFFLE
VOLUME
DSC
MUTE
DBB

Loading a tape

1 Press **STOP•OPEN**.
2 The tape deck door opens.
3 Load the tape with the open side downward and the full spool to the left.



4 Close the tape deck door.

Tape Playback

1 Press **TAPE** to select TAPE mode.
➜ "TAPE" will be displayed.
2 Load the tape into the selected tape deck.
3 Press **PLAY ▶** to start playback.
- To interrupt playback, press **PAUSE**.
- To resume playback, press **PAUSE** again.
4 Press **STOP•OPEN** to end playback.

Rewind/Fast Forward

When playback is stopped

1 You can rewind or fast forward a tape by pressing ◀◀ or ▶▶ , respectively.
➜ The tape will stop automatically at the end of rewinding or fast forwarding.
2 Press **STOP•OPEN** to stop rewinding or fast forwarding.

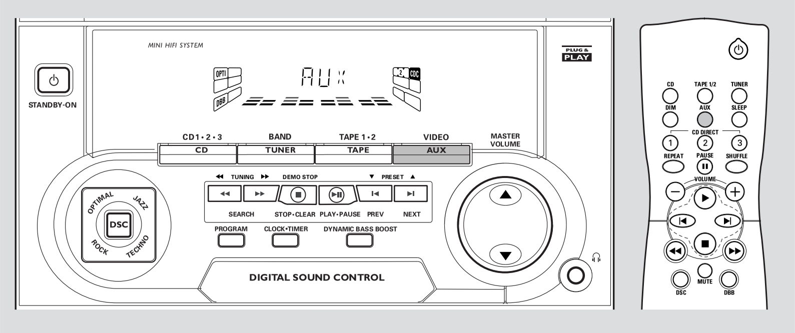
Tape

Continuous Playback From Tape Deck 2 to Tape Deck 1

1 Press **TAPE** to select TAPE mode.
2 Load the tapes in tape deck 1 and 2.
3 Press **PLAY ▶** on tape deck 2.
4 Press **PAUSE** on tape deck 1.
5 Press **PLAY ▶** on tape deck 1.
➜ Playback will begin with tape deck 2 and will continue with tape deck 1 when playback on tape deck 2 ends.
6 Press **STOP•OPEN** if you want to stop playback before the end of the tape in tape deck 1 or tape deck 2.

Notes:
– During rewinding or fast forwarding of a tape, it is also possible to listen to another source (e.g. CD, TUNER or AUX).
– Before playing a tape, check and tighten slack tape with a pencil. Slack tape may get jammed or may burst in the mechanism.
– C-120 tape is extremely thin and is easily deformed or damaged. It is not recommended for use in this system.
– Store the tapes at room temperature and do not put them too close to a magnetic field (for example, a transformer, TV or speaker).

Aux


MINI HIFI SYSTEM
PLUG & PLAY
STANDBY-ON
AUX
CD1•2•3
BAND
TAPE 1•2
VIDEO
CD
TUNER
TAPE
AUX
MASTER VOLUME
TUNING
DEMO STOP
PRESET
SEARCH
STOP•CLEAR
PLAY•PAUSE
PREV
NEXT
PROGRAM
CLOCK•TIMER
DYNAMIC BASS BOOST
OPTIMAL
JAZZ
DSC
ROCK
TECHNO
DIGITAL SOUND CONTROL
CD
TAPE 1/2
TUNER
DIM
AUX
SLEEP
CD DIRECT
REPEAT
PAUSE
SHUFFLE
VOLUME
DSC
MUTE
DBB

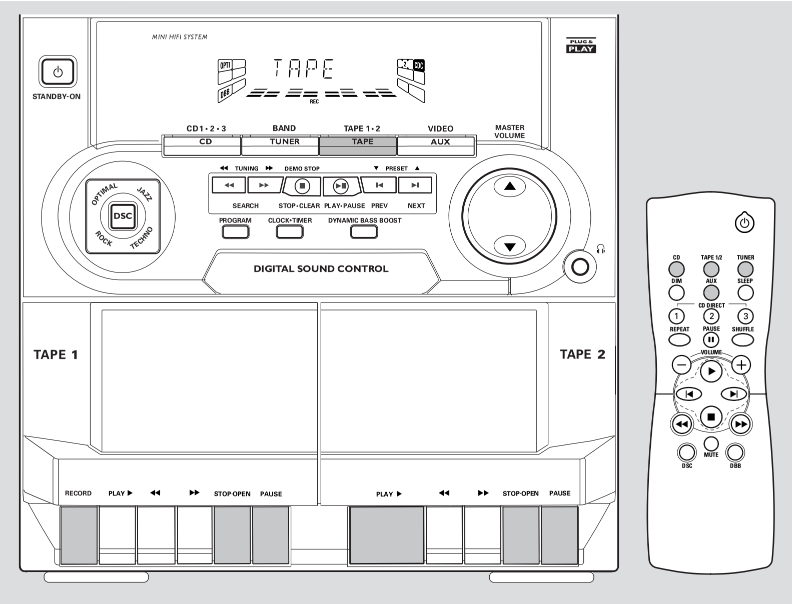
Selecting External Equipment

If you have connected the audio out terminals of the external equipment (TV, VCR, Laser Disc player, DVD player or CD Recorder) to the AUX IN terminals, you can hear the enhanced sound from the system.

- Press **AUX** to select the external equipment.
➜ "AUX" will be displayed.

Note:
– All the sound control features (e.g. DSC, DBB, etc.) are available for selection.

Recording


MINI HIFI SYSTEM
STANDBY-ON
TAPE
REC
PLUG & PLAY
CD 1 • 2 • 3
CD
BAND
TUNER
TAPE 1 • 2
TAPE
VIDEO
AUX
MASTER VOLUME
TUNING
DEMO STOP
PRESET
SEARCH
STOP • CLEAR
PLAY • PAUSE
PREV
NEXT
PROGRAM
CLOCK•TIMER
DYNAMIC BASS BOOST
OPTIMAL
JAZZ
DSC
ROCK
TECHNO
DIGITAL SOUND CONTROL
TAPE 1
TAPE 2
RECORD
PLAY
STOP•OPEN
PAUSE
CD
TAPE 1/2
TUNER
DIM
AUX
SLEEP
CD DIRECT
REPEAT
SHUFFLE
VOLUME
MUTE
DSC
DBB

Notes:
– For recording, use only tape of IEC type I (normal tape).
– The tape is secured at both ends with leader tape. At the beginning and end of tape, nothing will be recorded for six to seven seconds.
– The recording level is set automatically, regardless of the position of Volume, DBB or DSC.
– To prevent accidental recording, break out the tab on the left shoulder of the tape side you want to protect.

One Touch Recording

- For One Touch Recording, as soon as you press **RECORD**, the current source (CD, TUNER or AUX) will be recorded on tape deck 1.

1 Load a blank tape in tape deck 1.
2 Press **RECORD** on tape deck 1 to start recording.
➜ The **REC** starts flashing.
3 Press **PAUSE** to interrupt recording.
4 Press **STOP•OPEN** on tape deck 1 to stop recording.

Recording

CD Synchro Start Recording

During CD synchro start recording,
- Do not fast forward/rewind your tape in tape deck 2.

1 Load a blank tape into tape deck 1 and a disc into the disc tray.
2 Press **CD**.
- You can program the tracks in the order you want them to be recorded (see Programming Tracks). If you do not, the tracks are recorded according to the order on the selected disc.

3 Press **RECORD** on tape deck 1 to start recording.
➜ The **REC** starts flashing.
4 Press **STOP•OPEN** on tape deck 1 to stop recording, then press ■ to stop CD playback.

Dubbing tapes *(from tape deck 2 to tape deck 1)*

1 Load the prerecorded tape into tape deck 2 and a blank tape into tape deck 1.
- Make sure both tapes have their full spool to the left.

2 Press **PAUSE** on tape deck 1.
3 Press **RECORD** on tape deck 1.
➜ The **REC** starts flashing.
4 Press **PLAY ▶** on tape deck 2.
- Recording will start automatically.

5 Press **STOP•OPEN** on tape deck 1 and tape deck 2 to stop dubbing.

Notes:
– At the end of side A, flip the tapes to side B and repeat the procedure.
– Dubbing of tapes is only possible from tape deck 2 to tape deck 1.
– To ensure good dubbing, use tapes of the same length.

Recording from other sources

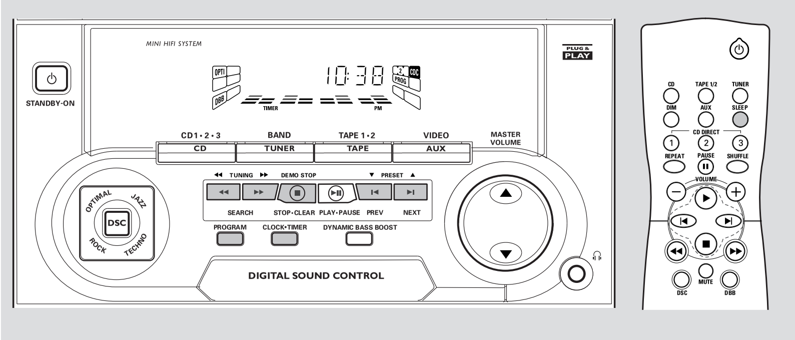
(only on tape deck 1)

1 Load a blank tape into tape deck 1.
2 Press **CD**, **TUNER** or **AUX**.
- Start playback of the selected source.

3 Press **RECORD** on tape deck 1 to start recording.
➜ The **REC** starts flashing.
4 Press **PAUSE** to interrupt recording.
5 Press **STOP•OPEN** on tape deck 1 to stop recording.

Note:
– During recording, it is not possible to listen to another sound source.

Clock/Timer



View Clock

You can view the clock (if it is set) if the system is in Standby mode or when any sound source is selected (CD,TUNER, etc.). The clock will be displayed for about seven seconds.

- Press **CLOCK•TIMER** briefly *(on the system only)*.
➜ " 10:38 **PM** or 22:38" (the current time) will be displayed depending on whether you have selected 12- or 24-hour mode.
➜ "--:--" will be displayed if the clock is not set.

Clock Setting

The clock can be set in either 12- or 24-hour mode, e.g. " 12:00 **AM**" or "00:00". Before setting the clock, you must be in the View Clock mode.

1. Press **CLOCK•TIMER** to select clock mode.
2. Press **PROGRAM** to select 12- and 24- hour mode.
➜ If 12-hour mode is selected, " 12:00" starts flashing and the **AM** lights up.
➜ If 24-hour mode is selected, "00:00" starts flashing.
3. Set the hour with ◀◀ or ▶▶ on the system.
4. Set the minute with |◀ or ▶| on the system.
5. Press **CLOCK•TIMER** again to store the setting.
➜ The clock starts.

- To exit without storing the setting, press ■ on the system.

Notes:
– During clock setting, if no button is pressed within 90 seconds, the system will exit clock setting mode automatically.
– When a power interruption occurs, the clock setting is erased.

Timer Setting

- The system can switch on to CD or TUNER mode automatically at a preset time. It can serve as an alarm to wake you up.
- Before setting the timer, make sure the clock is set correctly.
- The timer will always be switched on once it is set.
- **The volume of the timer will increase from the minimum level to the most recently selected volume level.**

1. Press and hold **CLOCK•TIMER** for more than ***2 seconds*** to select timer mode.
➜ "TU__XX:XX" or "CD__XX:XX" starts flashing. "XX:XX" is " 12:00 **AM**" or "00:00" or the last timer setting, depending on whether 12- or 24-hour mode has been selected.
➜ The **TIMER** starts flashing.
2. Press **CD** or **TUNER** to select the desired source.
➜ "TU__XX:XX" indicates the Tuner mode is selected.
➜ "CD__XX:XX" indicated the CD mode is selected.

- Before selecting CD, make sure a disc is loaded in the CD changer tray.

Clock/Timer

3. Press ◀◀ or ▶▶ on the system to set the hour for the timer to start.
4. Press |◀ or ▶| on the system to set the minute for the timer to start.
5. Press **CLOCK•TIMER** to store the start time.
➜ The timer is now set.
➜ The **TIMER** remains on the display.

- At the preset time, the timer will be activated.
➜ The selected source will be played.

Notes:
– During timer setting, if no button is pressed within 90 seconds, the system will exit timer setting mode automatically.
– If the source selected is TUNER, the last tuned frequency will be switched on.
– If the source selected is CD, playback will begin with the first track of the selected disc or programme. If the disc trays are empty, the TUNER will be selected instead.
– The timer will not activate if a recording is in progress.

To switch off the TIMER

1. Press and hold **CLOCK•TIMER** for more than ***2 seconds***.
2. Press ■ on the system to cancel the timer.
➜ The timer is now switched off.
➜ The display will show "OFF" and the **TIMER** disappears.

To start the TIMER again *(for the same preset time and source)*

1. Press and hold **CLOCK•TIMER** for more than ***2 seconds***.
2. Press **CLOCK•TIMER** again to store the start time.
➜ The timer is now on.
➜ The **TIMER** appears on the display.

Sleep Timer *(only on remote control)*

This feature allows you to select a length of time after which the system will switch to the standby mode automatically.

1. Press **SLEEP** on the remote control repeatedly to select a period of time.
➜ The selections are as follows (time in minutes): 15 ➜ 30 ➜ 45 ➜ 60 ➜ OFF ➜ 15 …
➜ "SLEEP XX" or "OFF" will be displayed. "XX" is the time in minutes.
2. When you reach the desired length of time, stop pressing the **SLEEP** button.
➜ The **SLEEP** display lights up.
➜ The Sleep Timer is now set. Before the system switches to standby mode, a countdown of 10 seconds will be displayed.
"SLEEP 10" ➜ "SLEEP 9".... ➜ "SLEEP 1" ➜ "SLEEP"

While SLEEP mode is activated

- Press **SLEEP** once to view the remaining length of time.
- Press **SLEEP** twice to change the pre-selected period of time.
➜ The display will show the remaining time followed by the sequence of sleep timer options.

To switch off the Sleep Timer

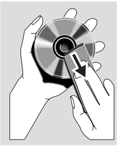
- Press **SLEEP** repeatedly until "OFF" is displayed, or press the **STANDBY-ON** button.

Maintenance

Cleaning the Cabinet

- Use a soft cloth slightly moistened with a mild detergent solution. Do not use a solution containing alcohol, spirits, ammonia or abrasives.

Cleaning Discs



- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the center out.
- Do not use solvents such as benzine, thinner, commercially available cleaners, or antistatic spray intended for analog records.

Cleaning the Disc lens

- After prolonged use, dirt or dust may accumulate at the disc lens. To ensure good playback quality, clean the disc lens with Philips CD Lens Cleaner or any commercially available cleaner. Follow the instructions supplied with cleaner.

Cleaning the Heads and the Tape Paths

- To ensure good recording and playback quality, clean the heads, the capstan(s), and pressure roller(s) after every 50 hours of tape operation.
- Use a cotton swab slightly moistened with cleaning fluid or alcohol.
- You can also clean the heads by playing a cleaning tape once.

Demagnetizing the heads

- Use a demagnetizing tape available at your dealer.

Troubleshooting

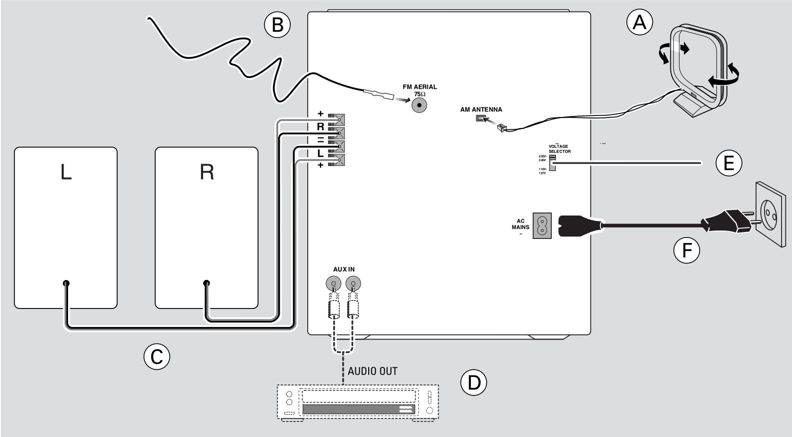
WARNING
Do not open the player as there is a risk of electric shock! Under no circumstances should you try to repair the player yourself, as this will invalidate the warranty

- If a fault occurs, first check the points listed below before taking the player for repair.
- If you are unable to remedy a problem by following these hints, consult your dealer or service centre.

Symptom	Remedy
CD PLAYER OPERATION	
"NO DISC" is displayed.	● If the disc is inserted upside down. ● Moisture condensation at the lens. ● There is no disc in the CD tray. ● The disc is dirty, badly scratched or warped. ● The disc lens is dirty or dusty, refer to section under Maintenance.
"DISC NOT FINALIZED" is displayed.	● The CD-RW or CD-R disc is not properly recorded for use with a standard CD player. ● The disc is badly scratched or dirty.
RADIO RECEPTION	
Poor radio reception.	● The signal is too weak, adjust the antenna or connect an external antenna for better reception. ● The TV or VCR is too close to the stereo system.
TAPE DECK OPERATION	
Recording or playback cannot be made or there is a decrease in audio level.	● Dirty tape heads, capstans or pressure rollers, refer to section under Maintenance. ● Magnetic build-up in the record/playback head, use demagnetizing tape.
GENERAL	
System does not react when any button is pressed.	● Press STANDBY-ON to switch the system off. Remove the AC power plug from the wall outlet, then reconnect the power plug and switch on the system again.
No or poor sound.	● Adjust the volume. ● Disconnect the headphones. ● Check that the speakers are connected correctly. ● Check if the stripped speaker wire is clamped.
Reversed left and right sound.	● Check the speaker connections and location.
Lack of bass sound or apparently imprecise physical location of musical instruments.	● Check the speaker connection for proper phasing, colored/black wires to colored/ black terminals.
Remote control has no effect on the system.	● Select the source (CD, TUNER, etc.) before pressing the function button (▶, ⏮, ⏭, etc.). ● Reduce the distance to the system. ● Insert the batteries with their polarities (+/– signs) as indicated. ● Replace the batteries.
Timer is not working.	● Set the clock. ● Press CLOCK•TIMER to switch on the timer. ● If recording or dubbing is in progress, stop recording.
Clock setting is erased.	● Reset the clock.
System displays features automatically.	● Press and hold ■ (on the system) for 5 seconds to switch off the demonstration.

Additional Features for /21/21M

Preparations



Rear Connections

Ⓐ **AM Loop Antenna Connection**
Connect the supplied loop antenna to the AM ANTENNA terminal. Place the AM loop antenna far away from the system and adjust its position for the best reception.

Ⓑ **FM Wire Antenna Connection**
Connect the supplied FM wire antenna to the FM AERIAL (FM ANTENNA) 75 Ω terminal. Adjust the position of the FM antenna for the best reception.

Outdoor Antenna
For better FM stereo reception, connect an outdoor FM antenna to the FM AERIAL (FM ANTENNA) 75 Ω terminal using a 75 Ω coaxial wire.

FM AERIAL 75Ω
OR
FM ANTENNA 75Ω

Ⓓ **Connecting other equipment to your player**
You can connect the audio left and right OUT terminals of a TV,VCR, Laser Disc player, DVD player or CD Recorder to the AUX IN terminals at the rear of the system.

Ⓔ **Adjusting the Operating Voltage** *(For /21/ 21M versions only)*
Before connecting the AC power cord to the wall outlet, make sure that the voltage selector at the rear of the system is set to the local power line voltage. If not, reset the selector before connecting to the wall outlet.

Ⓕ **AC Power Supply**
After all other connections have been made, connect the AC power cord to the system and to the wall outlet.

Tuner

Tuning to Preset Radio Stations

- Press ▼ or ▲ to select the desired preset number.
  ➜ The preset number, radio frequency, and waveband appear on the display.

Changing the MW tuning grid *(For /21/21M versions only)*

The frequency step can be changed if necessary. In North and South America, the frequency step between adjacent channels in the MW band is 10 kHz. In other parts of the world, it is 9 kHz. The frequency step preset in the factory is 9 KHz.

For MW Band
To change from 9 kHz to 10 kHz or vice versa

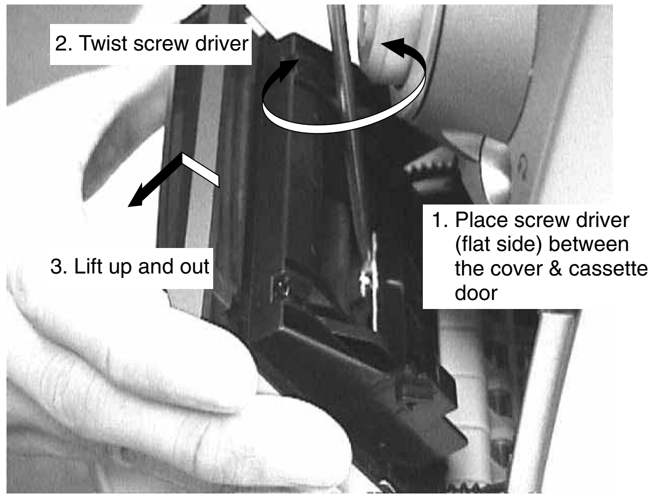
Changing of tuning grid will erase all previously stored preset stations.

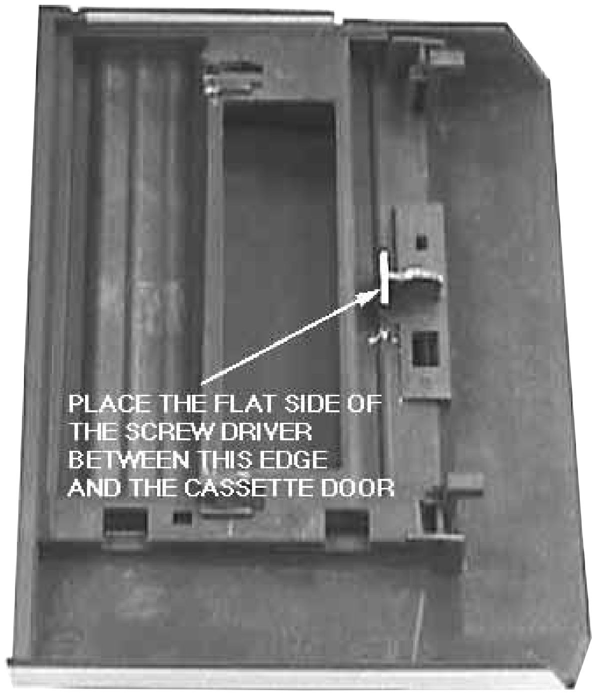
1 Disconnect the system from the AC power supply *(pull out the AC power cord)*.
2 Press and hold TUNER and TUNING ▶▶ while reconnecting the system to the AC power supply.
➜ Display will show "GRID 10" or "GRID 9".

Notes:
– GRID 9 indicates that the tuning grid is in step of 9 kHz in MW band. GRID 10 indicates that the tuning grid is in step of 10 kHz in MW band.
– FM tuning grid will also be changed from 50 kHz to 100 kHz or vice versa.

DISMANTLING INSTRUCTIONS

Dismantling of the Cassette Cover


2. Twist screw driver
3. Lift up and out
1. Place screw driver (flat side) between the cover & cassette door

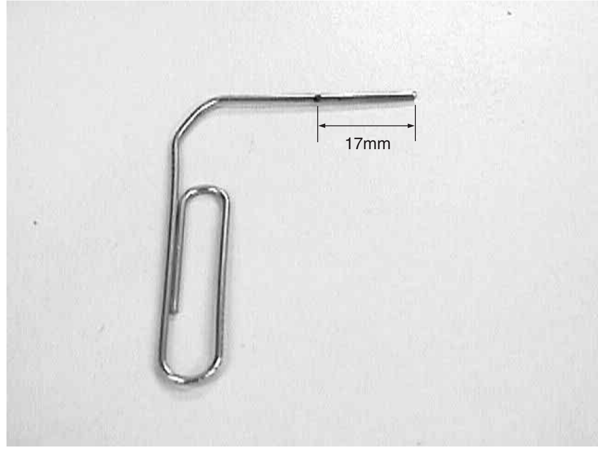

PLACE THE FLAT SIDE OF THE SCREW DRIVER BETWEEN THIS EDGE AND THE CASSETTE DOOR

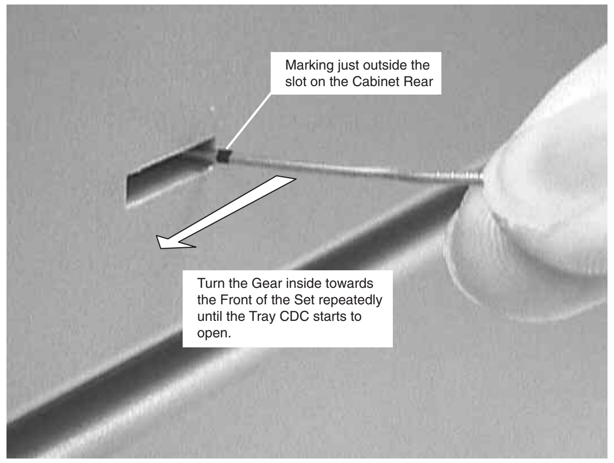
Cassette door

Opening the CDC Tray manually

1) Take a paper clip or any stiff wire diameter of 1mm -1.5mm and make a marking about 17mm from the tip.
2) Place the set in an upright position and insert the paper clip into the slot on the right side of the Cabinet Rear.
3) With the marking just outside the Cabinet Rear, you should be able to engage the gear on the side of the 3CDC-LC Module. Because of the distance between the gear and the Cabinet Rear the chance of the paper clip slipping above or below the gear is high, therefore you have to feel and adjust slightly to engage the gear correctly.
4) Push the gear slowly towards the front as shown until the Tray CDC starts to move out of the Front Cabinet. The Tray CDC is now disengage and can be pulled out completely

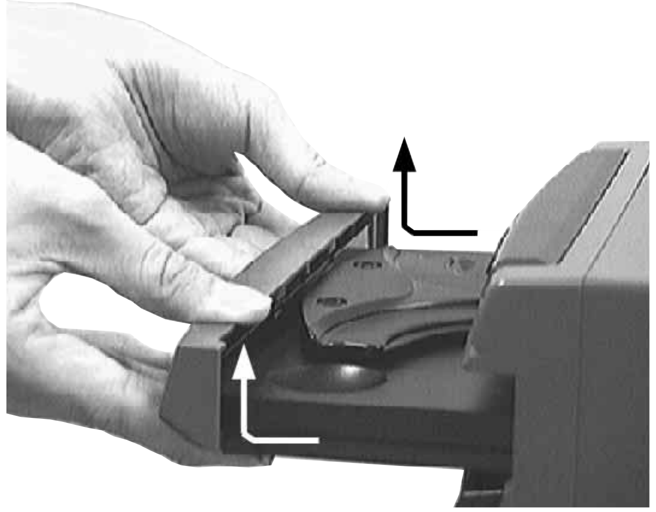
Note: ***If the Cabinet Rear has to be replaced, it has to be replaced by one that has a similar slot on the right side of the Cabinet otherwise there is no possibility to disassemble the same set in the future.***

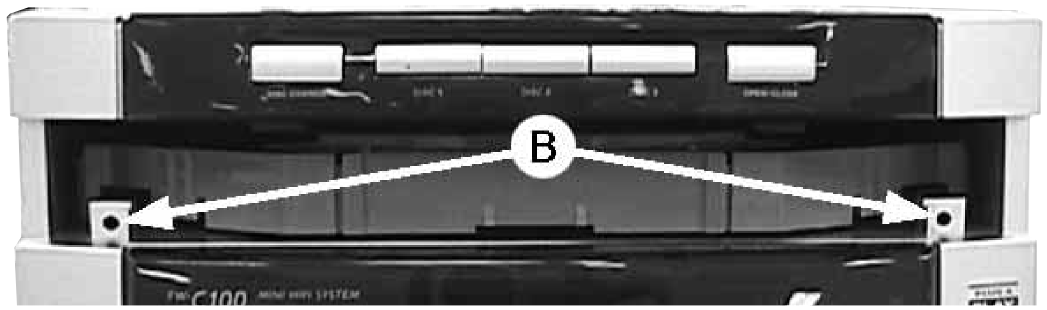



Marking just outside the slot on the Cabinet Rear
Turn the Gear inside towards the Front of the Set repeatedly until the Tray CDC starts to open.

Dismantling of the Front Panel

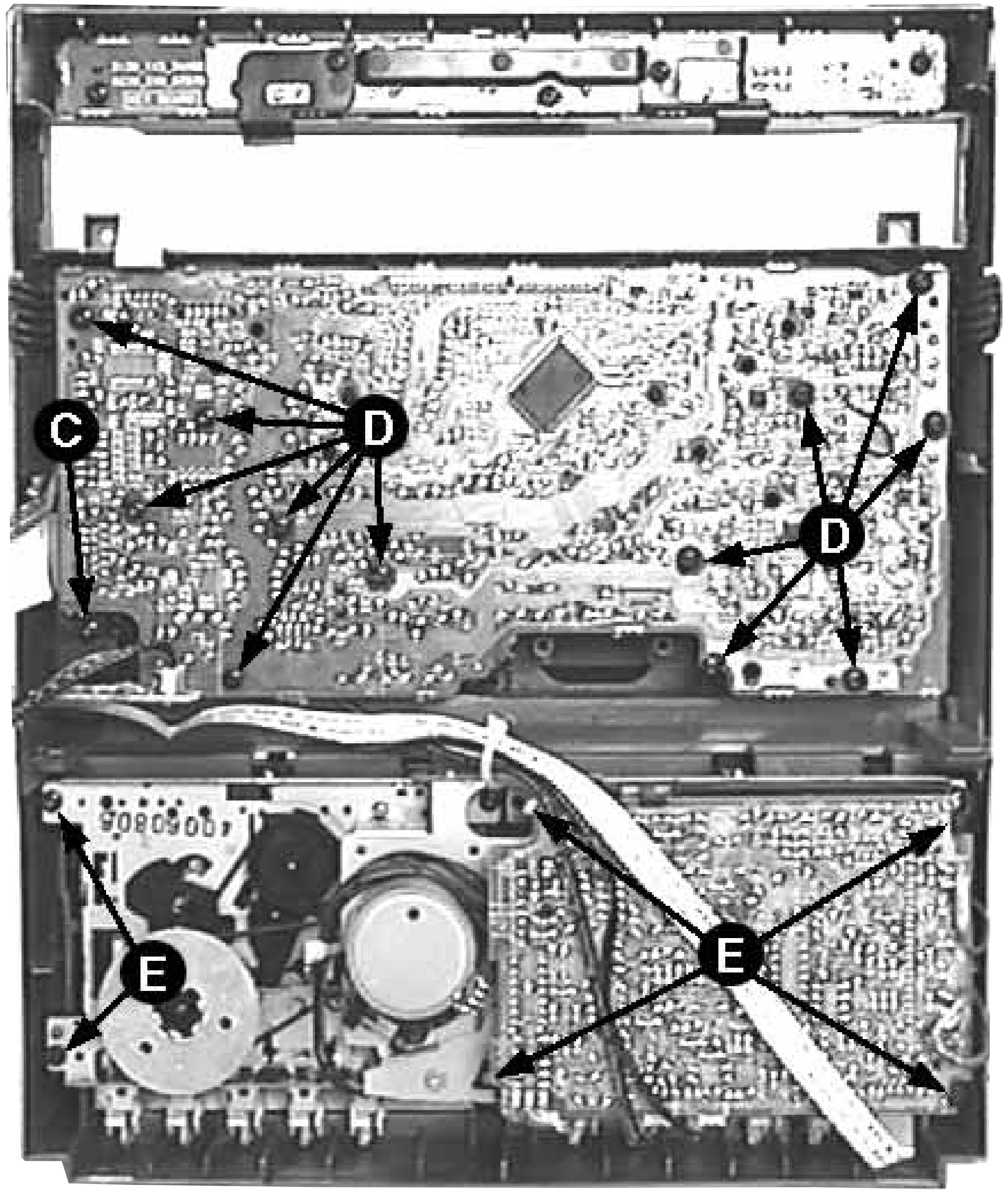
1) With the CDC tray opened remove the Cover Tray CDC (pos 107) as indicated.
2) Loosen the 8 screws to separate the Front Panel from the rear portion.
    - 2 screws B on the front
    - 2 screws each on the left & right side
    - 2 screws at the bottom





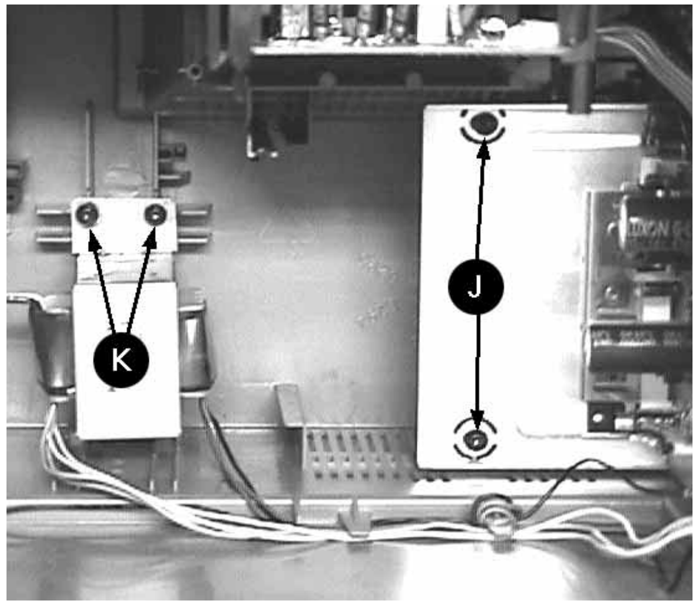
Dismantling of Assemblies on the Front Panel

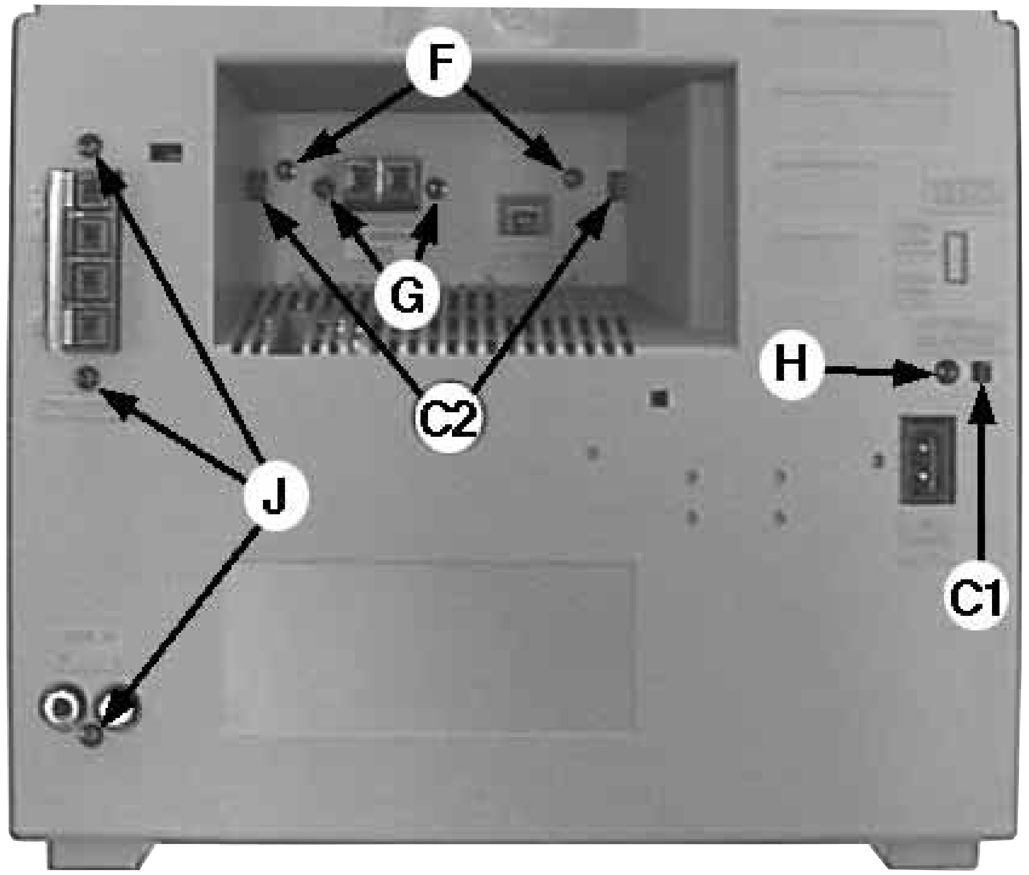
1) Remove 1 screw C to loosen the Headphone board.
2) Remove 12 screws D as indicated to loosen the Front board.
3) Remove 6 screws E to loosen the ECO-MTF Module



Dismantling of Rear Portion

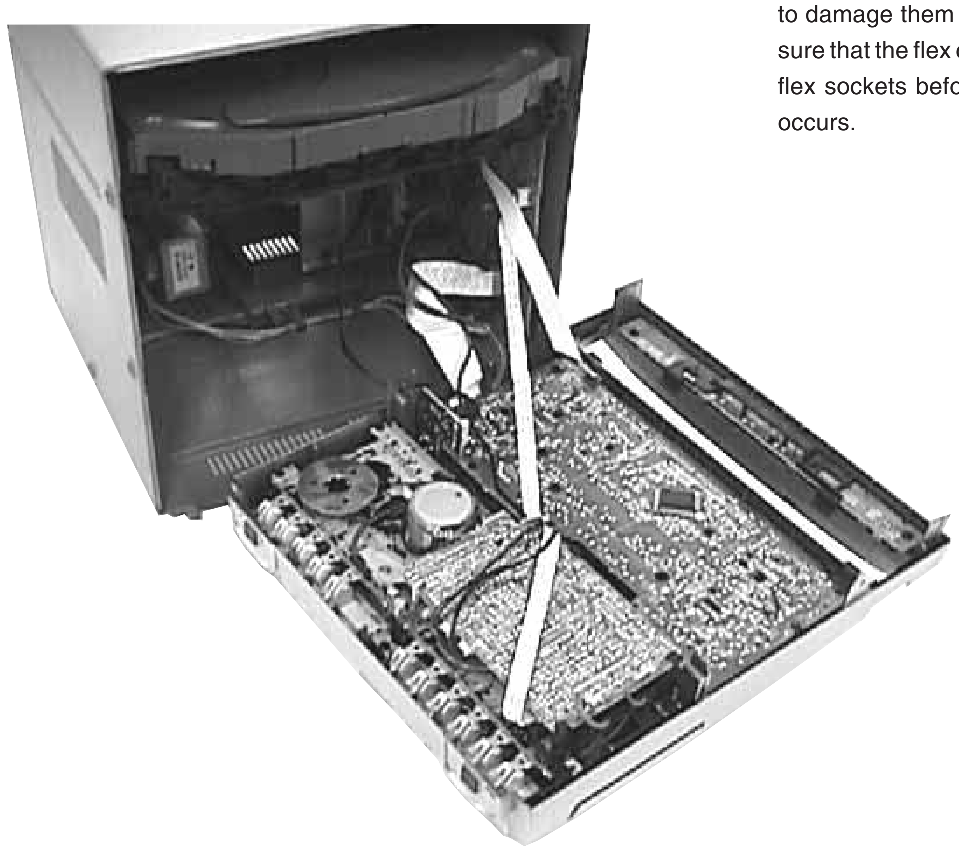
1) Remove 1 screw H & uncatch C1 to loosen the Mains socket board.
2) Remove 2 screws F, 2 screws G and uncatch C2 to loosen the Tuner board assembly.
3) Remove 5 screws J (3x on the rear and 2x on the heatsink) to loosen the Combi board (Main part).
4) Remove 2 screws K to loosen the Mains Transformer.



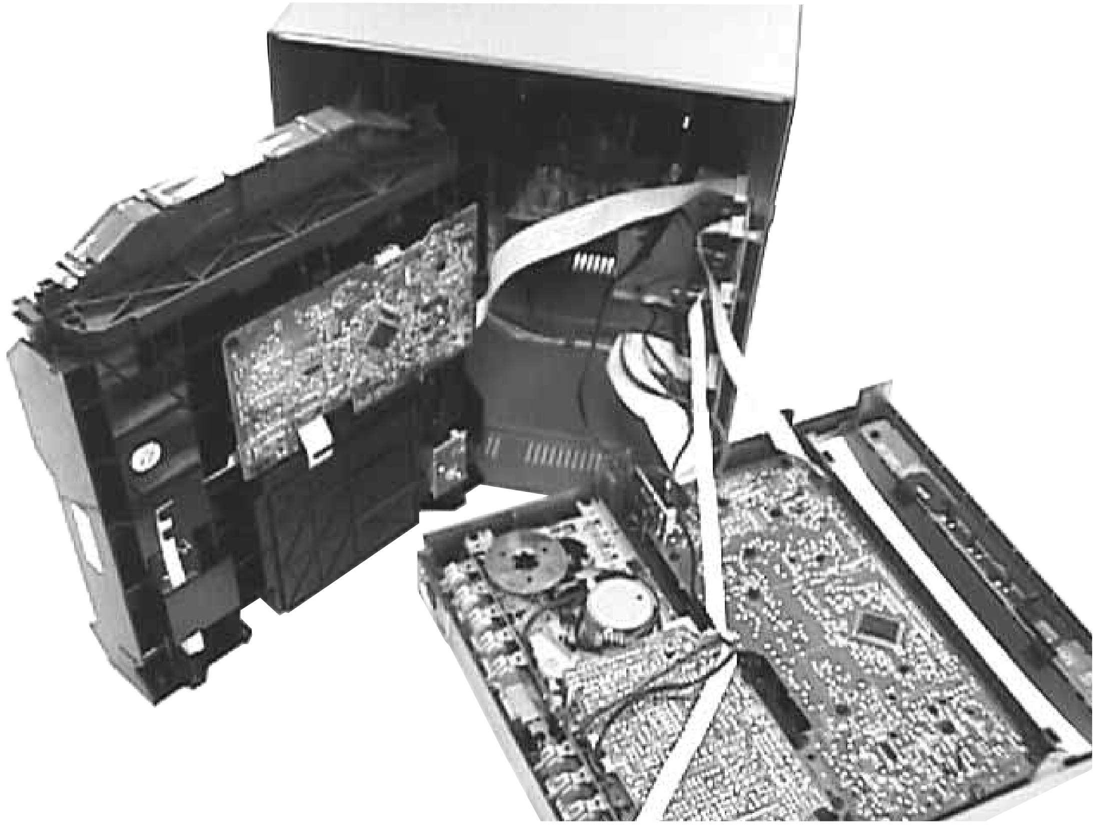


Service pos A

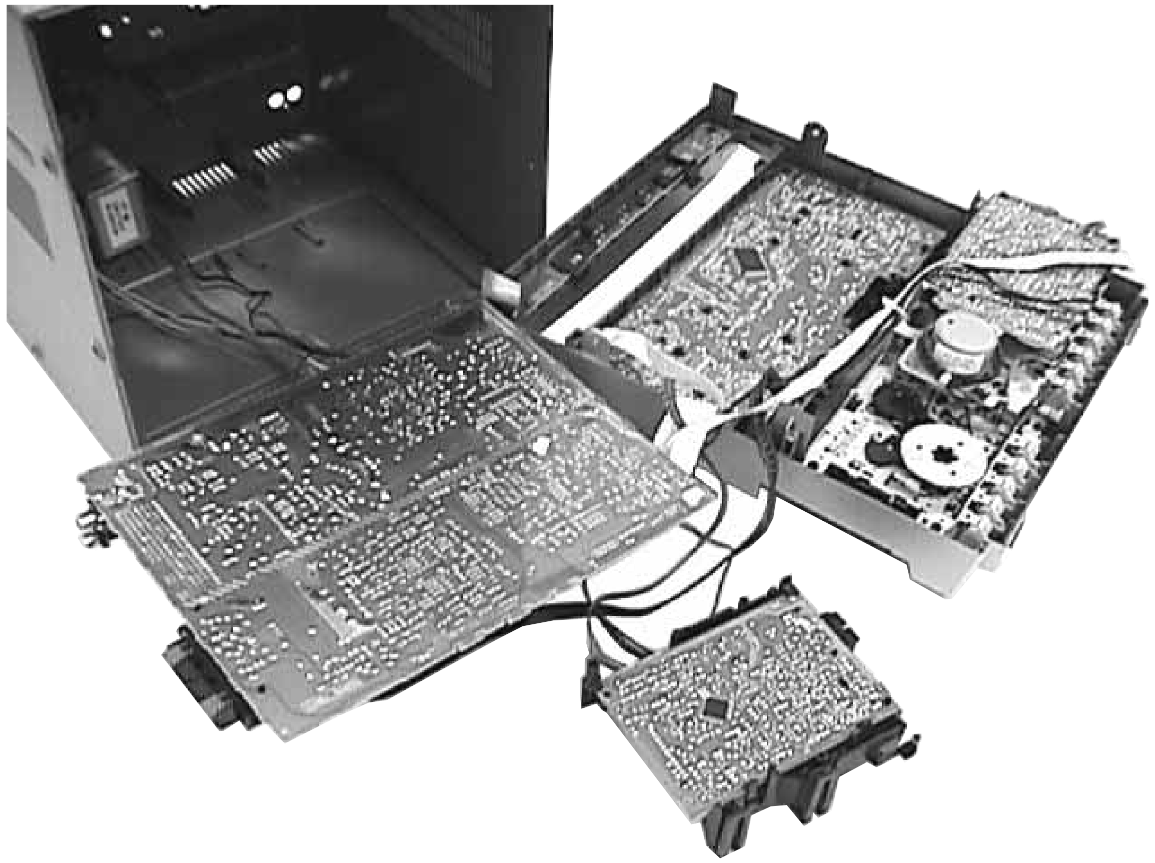
Note: Flex cables are very fragile, care should be taken not to damage them during repair. After repair, be very sure that the flex cables are inserted properly into the flex sockets before encasing, otherwise faults may occurs.



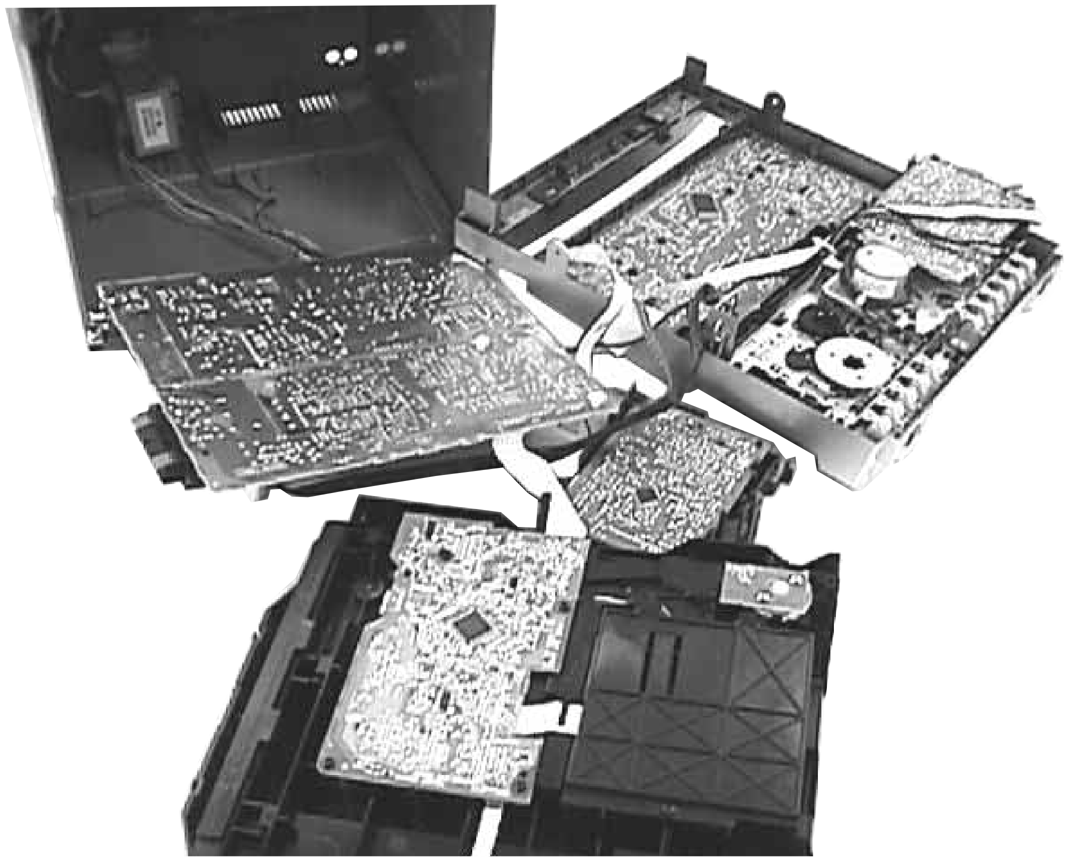
Service pos B



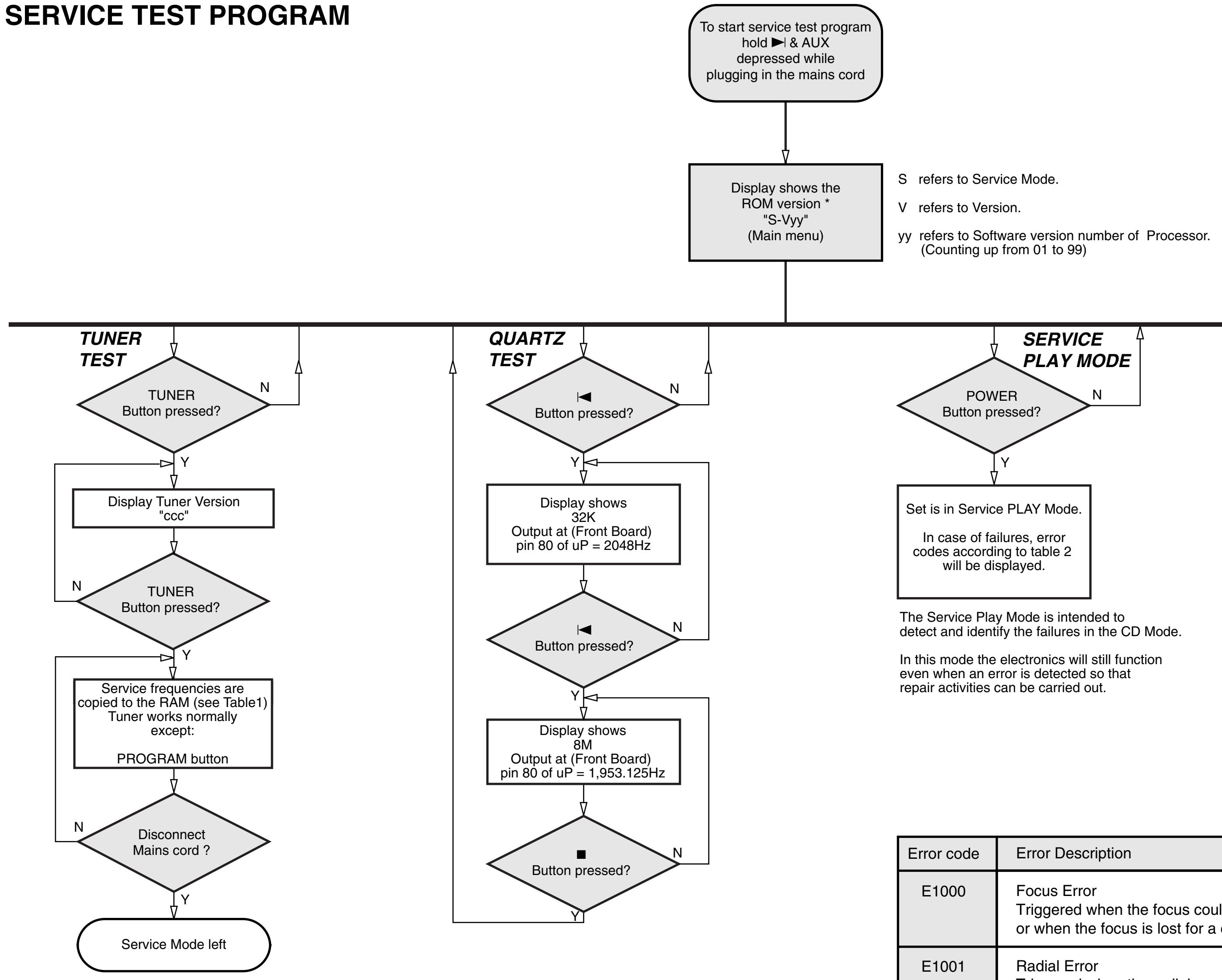
Service pos C



Service pos D



SERVICE TEST PROGRAM


To start service test program hold ►| & AUX depressed while plugging in the mains cord
Display shows the ROM version * "S-Vyy" (Main menu)
TUNER TEST
TUNER Button pressed?
N
Y
Display Tuner Version "ccc"
TUNER Button pressed?
N
Y
Service frequencies are copied to the RAM (see Table1) Tuner works normally except: PROGRAM button
Disconnect Mains cord ?
N
Y
Service Mode left
QUARTZ TEST
|◄ Button pressed?
N
Y
Display shows 32K Output at (Front Board) pin 80 of uP = 2048Hz
|◄ Button pressed?
N
Y
Display shows 8M Output at (Front Board) pin 80 of uP = 1,953.125Hz
■ Button pressed?
N
Y
SERVICE PLAY MODE
POWER Button pressed?
N
Y
Set is in Service PLAY Mode.
In case of failures, error codes according to table 2 will be displayed.

S refers to Service Mode.

V refers to Version.

yy refers to Software version number of Processor. (Counting up from 01 to 99)

The Service Play Mode is intended to detect and identify the failures in the CD Mode.

In this mode the electronics will still function even when an error is detected so that repair activities can be carried out.

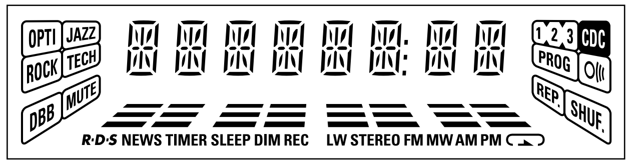
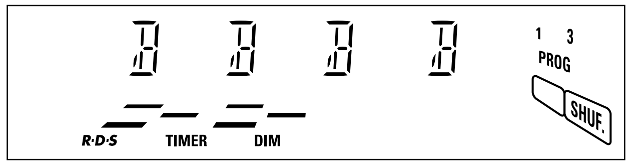
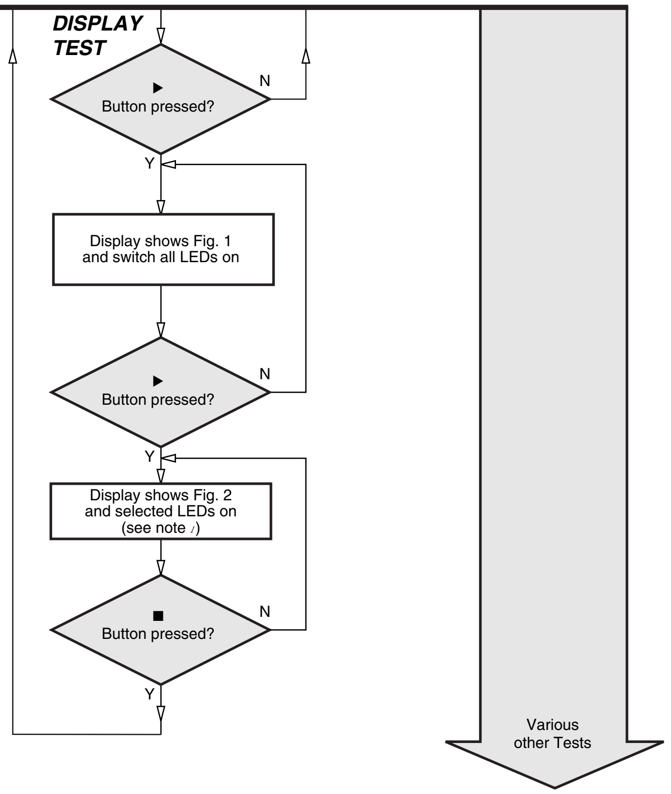

OPTI
JAZZ
ROCK
TECH
DBB
MUTE
R·D·S NEWS TIMER SLEEP DIM REC LW STEREO FM MW AM PM
1 2 3
CDC
PROG
REP
SHUF.

Figure 1


1 3
PROG
SHUF.
R·D·S
TIMER
DIM

note ♪: DISC1, DISC3, TUNER, JAZZ, TECHNO and Biplanar (if applicable)

Figure 2


DISPLAY TEST
► Button pressed?
N
Y
Display shows Fig. 1 and switch all LEDs on
► Button pressed?
N
Y
Display shows Fig. 2 and selected LEDs on (see note ♪)
■ Button pressed?
N
Y
Various other Tests

PRESET	Europe "EUR"	East Eur. "EAS"	East Eur. Extended-band "EAS"	USA "USA"	Oversea "OSE"
1	87.5MHz	87.5MHz	65.81MHz	87.5MHz	87.5MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz
3	531kHz	531kHz	74MHz	530kHz	531/530kHz*
4	1602kHz	1602kHz	87.5MHz	1700kHz	1602/1700kHz*
5	558kHz	558kHz	531kHz	560kHz	558/560kHz*
6	1494kHz	1494kHz	1602kHz	1500kHz	1494/1500kHz*
7	153kHz	87.5MHz	558kHz	98MHz	87.5/98MHz*
8	279kHz	87.5MHz	1494kHz	87.5MHz	87.5MHz
9	198kHz	87.5MHz	98MHz	87.5MHz	87.5MHz
10	98MHz	87.5MHz	70.01MHz	87.5MHz	87.5MHz
11	87.5MHz	98MHz	65.81MHz	87.5MHz	98/87.5MHz*

Table 1

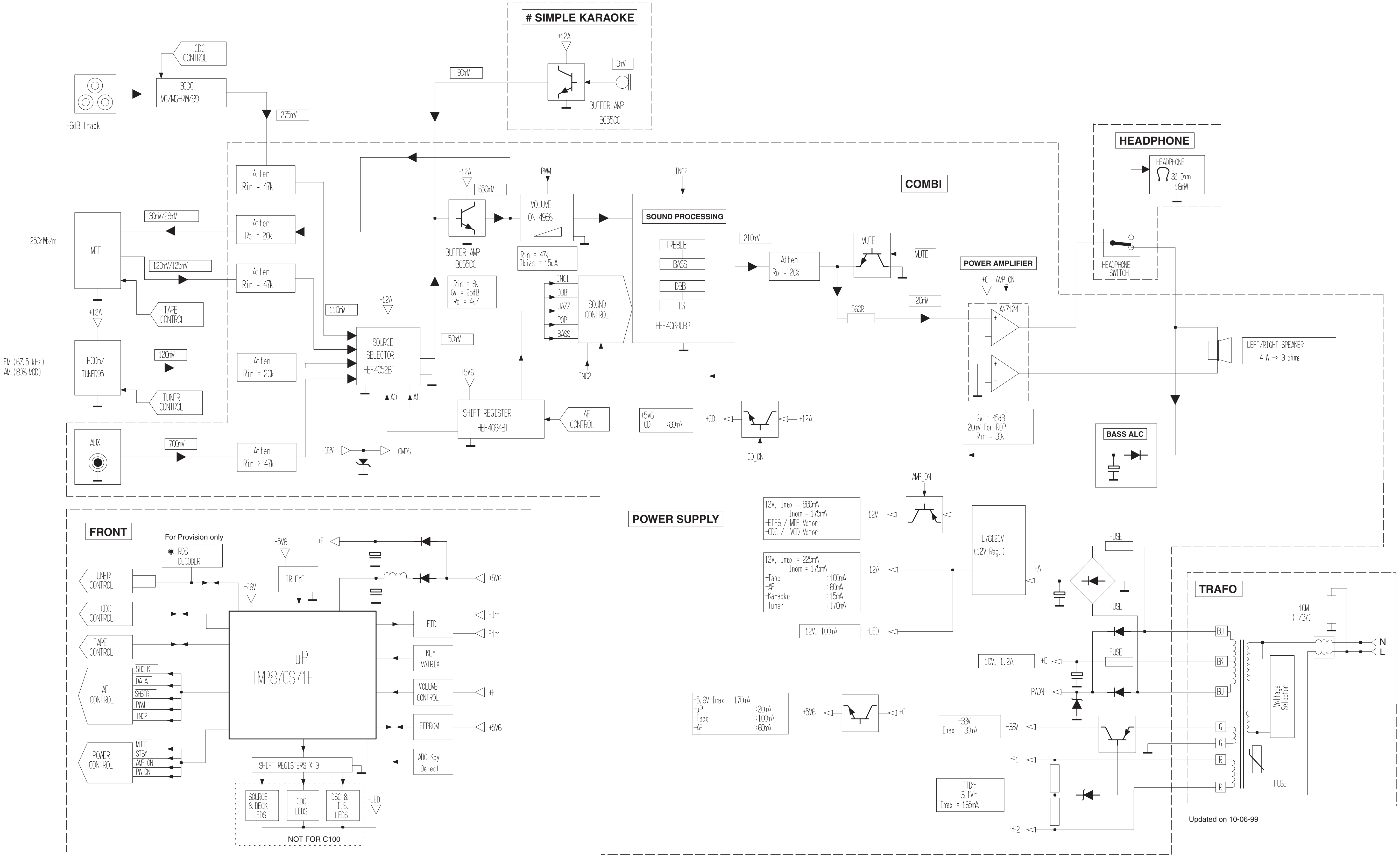
Note: * Depending on the selected grid frequency (9 or 10kHz)
By holding the TUNER and ►► buttons depressed while switching on the Mains supply, one of the undermentioned features will be activated:
- the tuning grid frequency is toggled between 9kHz and 10kHz for the Oversea (/21) version.
- the extended FM1 (65.81MHz - 74MHz) is toggled on and off for East Eur. (/34) version.

Error code	Error Description
E1000	Focus Error Triggered when the focus could not be found within a certain time when starting up the CD or when the focus is lost for a certain time during play.
E1001	Radial Error Triggered when the radial servo is off-track for a certain time during play.
E1002	Sledge In Error The sledge did not reach its inner position (inner-switch is still close) before approximately 6 Sec. have passed by. Inner-switch or sledge motor problem.
E1003	Sledge Out Error The sledge did not come out of its inner position (inner-switch is still open) before approximately 250 mSec. have passed by. Inner-switch or sledge motor problem.
E1005	Jump-offtrack error Triggered in normal play when the jump destination could not be found within a certain time. When this error occurred, software will try to recover by initiating the jump command again. If it is recoverable, the disc will continue to play.
E1006	Subcode Error Triggered when a new subcode was missing for a certain time during play.
E1007	PLL Error The Phase Lock Loop could not lock within a certain time.
E1008	Turntable Motor Error Generated when the CD could not reached 75% of speed during startup within a certain time. Discmotor problem.
E1020	Focus Search Error The focus point has not been found within a certain time.
E1070	The carousel switch is not open within certain time. This can happen when either the switch is defective and closed all the time, or when the carousel is blocked when located exactly at a disc position.
E1071	The carousel position switch did not close within a certain time. This can happen when the switch is defective and never closes electrically, or when the carousel is blocked in between two disc positions. The time-out is approximately 5 Sec.
E1079	The drawer could not enter the inside position and is opening again. This happen when the drawer is blocked and cannot go fully inside or when the drawer switch is defective and does not close.

Table 2

TEST	***Activated with***	***ACTION***
EEPROM TEST	►► ■ to Exit	A test pattern will be sent to the EEPROM. "PASS" is displayed if the uProcessor read back the test pattern correctly, otherwise "ERROR" will be displayed.
EEPROM FORMAT	◄◄	Load default data. Display shows "NEW" for 1 second. ***Caution!*** ***All presets from the customer will be lost!!***
ENCODER TEST	Volume Knob or Jog Shuttle knob	Display shows value for 2 seconds. Values increases or decreases in steps of 1 until 0 (Min.) or 40 (Max.) is reached.
LEAVE SERVICE TESTPROGRAM	Disconnect mains cord	

SET BLOCK DIAGRAM



# SIMPLE KARAOKE
+12A
3mV
BUFFER AMP
BC550C
90mV
CDC CONTROL
3CDC MG/MG-RW/99
-6dB track
275mV
COMBI
Atten Rin = 47k
Atten Ro = 20k
Atten Rin = 47k
Atten Rin = 20k
Atten Rin > 47k
MTF
250nWb/m
30mV/28mV
120mV/125mV
TAPE CONTROL
+12A
EC05/ TUNER95
FM (67.5 kHz) AM (80% MOD)
120mV
TUNER CONTROL
AUX
700mV
110mV
+12A
SOURCE SELECTOR HEF4052BT
A0
A1
50mV
+12A
650mV
BUFFER AMP BC550C
Rin = 8k Gv = 25dB Ro = 4k7
PWM
VOLUME ON 4966
Rin = 47k Ibias = 15uA
INC2
SOUND PROCESSING
TREBLE
BASS
DBB
IS
HEF4069UBP
INC1
DBB
JAZZ
POP
BASS
SOUND CONTROL
INC2
+5V6
SHIFT REGISTER HEF4094BT
AF CONTROL
-33V
-CMOS
210mV
Atten Ro = 20k
MUTE
MUTE
560R
20mV
POWER AMPLIFIER
+C
AMP_ON
AN7124
Gv = 45dB 20mV for ROP Rin = 30k
+5V6 -CD :80mA
+CD
+12A
CD_ON
HEADPHONE
HEADPHONE 32 Ohm 18mW
HEADPHONE SWITCH
LEFT/RIGHT SPEAKER 4 W -> 3 ohms
BASS ALC
FRONT
For Provision only
RDS DECODER
TUNER CONTROL
CDC CONTROL
TAPE CONTROL
AF CONTROL
SHCLK
DATA
SHSTR
PWM
INC2
POWER CONTROL
MUTE
STBY
AMP ON
PW ON
+5V6
IR EYE
-26V
+F
+5V6
uP TMP87CS71F
FTD
F1~
F1~
KEY MATRIX
VOLUME CONTROL
+F
EEPROM
+5V6
ADC Key Detect
SHIFT REGISTERS X 3
SOURCE & DECK LEDS
CDC LEDS
DSC & I.S. LEDS
+LED
NOT FOR C100
POWER SUPPLY
AMP_ON
12V, Imax = 880mA Inom = 175mA -ETF6 / MTF Motor -CDC / VCD Motor
+12M
L7812CV (12V Reg.)
12V, Imax = 225mA Inom = 175mA -Tape :100mA -AF :60mA -Karaoke :15mA -Tuner :170mA
+12A
+A
FUSE
FUSE
12V, 100mA
+LED
10V, 1.2A
+C
FUSE
PWON
+5.6V Imax = 170mA -uP :20mA -Tape :100mA -AF :60mA
+5V6
+C
-33V Imax = 30mA
-33V
+F1
FTD~ 3.1V~ Imax = 165mA
+F2
TRAFO
10M (-/37)
N
L
BU
BK
BU
G
G
R
R
Voltage Selector
FUSE

Updated on 10-06-99

LEGEND:

mV AC SIGNAL LEVEL

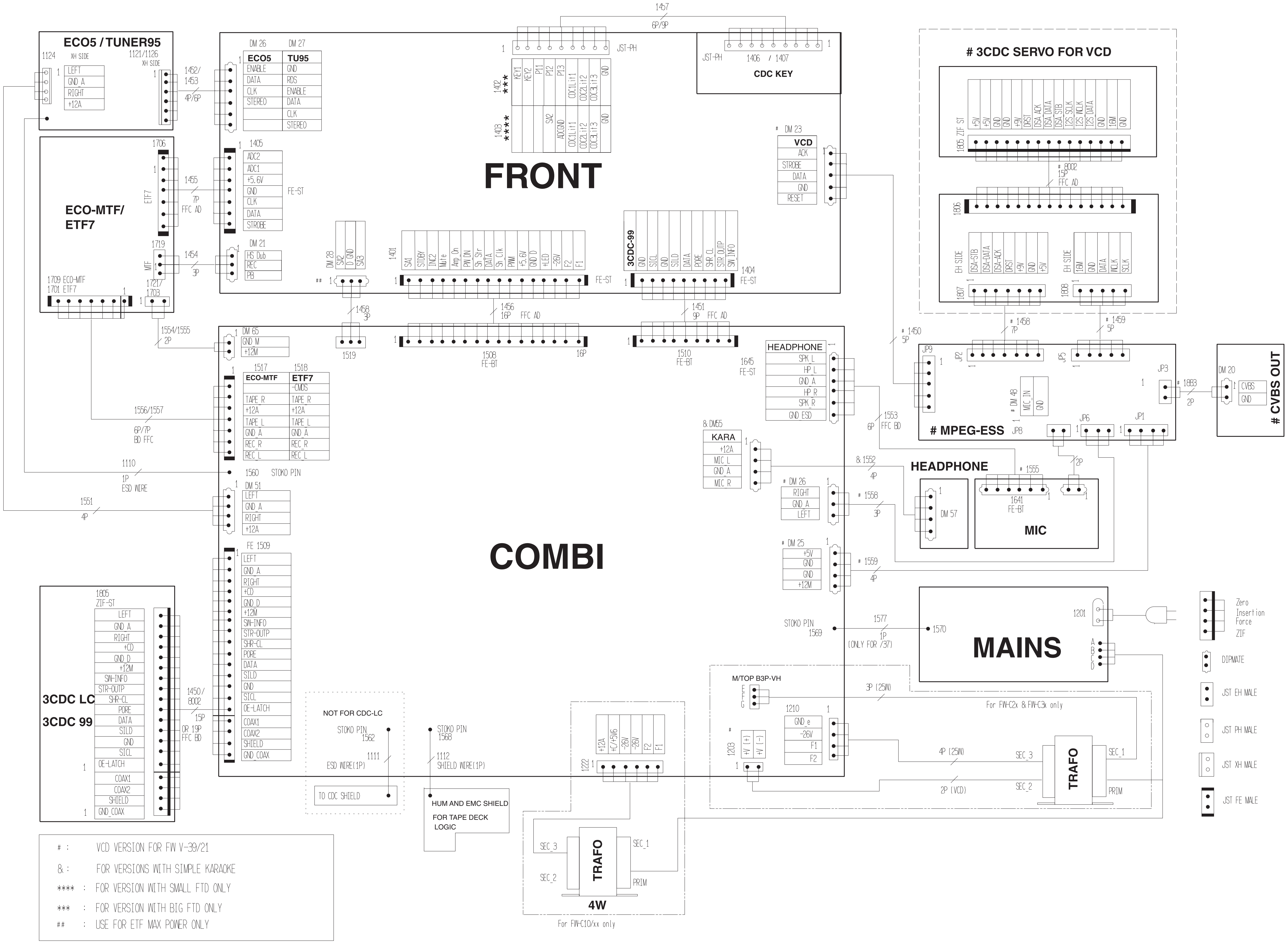
→ SIGNAL FLOW

→ CONTROL SIGNAL

ALL OUTPUTS FROM SOURCES ARE 1kHz, 0dB UNLESS STATED OTHERWISE.

SIMPLE KARAOKE FEATURE ONLY FOR -/21 VER.

SET WIRING DIAGRAM


ECO5 / TUNER95
1124
XH SIDE
1121/1126
XH SIDE
LEFT
GND A
RIGHT
+12A
1452/
1453
4P/6P
ECO-MTF/
ETF7
1706
ETF7
1455
7P
FFC AD
1719
MTF
1454
3P
1709 ECO-MTF
1701 ETF7
1721/
1703
1554/1555
2P
1556/1557
6P/7P
BD FFC
1110
1P
ESD WIRE
1551
4P
1457
6P/9P
JST-PH
FRONT
DM 26
DM 27
ECO5
ENABLE
DATA
CLK
STEREO
TU95
GND
RDS
ENABLE
DATA
CLK
STEREO
1405
ADC2
ADC1
+5.6V
GND
CLK
DATA
STROBE
FE-ST
DM 21
HS Dub
REC
PB
1402 ***
KEY1
KEY2
P11
P12
P13
CDC1L1
CDC2L1 2
CDC3L1 3
GND
1403 ****
SA2
ADCGND
CDC1L1 1
CDC2L1 2
CDC3L1 3
GND
JST-PH
1406 / 1407
CDC KEY
# DM 23
VCD
ACK
STROBE
DATA
GND
RESET
DM 28
SA2
D GND
SA3
##
1401
SA1
STDBY
INC2
Mute
Amp On
PW DN
Sh Str
DATA
Sh Clk
PWM
+5.6V
GND D
+LED
-26V
F2
F1
FE-ST
3CDC-99
GND
SICL
GND
SILD
DATA
PORE
SHR CL
STR OUTP
SW INFO
1404
FE-ST
1458
3P
1456
16P FFC AD
1451
9P FFC AD
COMBI
DM 65
GND M
+12M
1519
1508
FE-BT
16P
1510
FE-BT
1645
FE-ST
1517
1518
ECO-MTF
ETF7
-CMOS
TAPE R
+12A
TAPE L
GND A
REC R
REC L
1560 STOKO PIN
DM 51
LEFT
GND A
RIGHT
+12A
FE 1509
LEFT
GND A
RIGHT
+CD
GND D
+12M
SW-INFO
STR-OUTP
SHR-CL
PORE
DATA
SILD
GND
SICL
OE-LATCH
COAX1
COAX2
SHIELD
GND COAX
HEADPHONE
SPK L
HP L
GND A
HP R
SPK R
GND ESD
& DM55
KARA
+12A
MIC L
GND A
MIC R
# DM 26
RIGHT
GND A
LEFT
# DM 25
+5V
GND
GND
+12M
STOKO PIN
1569
1577
1P
(ONLY FOR /37)
1570
MAINS
1201
A
B
C
D
# 3CDC SERVO FOR VCD
1805 ZIF ST
+5V
+5V
GND
GND
+9V
DRST
DSA ACK
DSA DATA
DSA STB
I2S SCLK
I2S WCLK
I2S DATA
GND
16M
GND
# 8002
15P
FFC AD
1806
EH SIDE
DSA-STB
DSA-DATA
DSA-ACK
DRST
+9V
GND
+5V
EH SIDE
16M
GND
DATA
WCLK
SCLK
1807
1808
# 1458
7P
# 1459
5P
# 1450
5P
JP9
JP2
JP5
JP3
# 1863
2P
# DM 48
MIC_IN
GND
JP8
JP6
JP1
# MPEG-ESS
DM 20
CVBS
GND
# CVBS OUT
1553
6P
FFC BD
& 1552
4P
# 1558
3P
# 1559
4P
HEADPHONE
# 1555
2P
DM 57
1641
FE-BT
MIC
1805
ZIF-ST
3CDC LC
3CDC 99
LEFT
GND A
RIGHT
+CD
GND D
+12M
SW-INFO
STR-OUTP
SHR-CL
PORE
DATA
SILD
GND
SICL
OE-LATCH
COAX1
COAX2
SHIELD
GND COAX
1450/
8002
15P
OR 19P
FFC BD
NOT FOR CDC-LC
STOKO PIN
1562
1111
ESD WIRE(1P)
TO CDC SHIELD
STOKO PIN
1568
1112
SHIELD WIRE(1P)
HUM AND EMC SHIELD
FOR TAPE DECK
LOGIC
1222
+12A
+C/+5V6
-26V
-26V
F2
F1
SEC 3
SEC 1
SEC 2
PRIM
TRAFO
4W
For FW-C10/xx only
M/TOP B3P-VH
E
F
G
3P (25W)
For FW-C2x & FW-C3x only
1210
GND e
-26V
F1
F2
# 1203
+V (+)
+V (-)
4P (25W)
2P (VCD)
SEC 3
SEC 2
SEC 1
PRIM
TRAFO
Zero
Insertion
Force
ZIF
DIPMATE
JST EH MALE
JST PH MALE
JST XH MALE
JST FE MALE

# : VCD VERSION FOR FW V-39/21

& : FOR VERSIONS WITH SIMPLE KARAOKE

**** : FOR VERSION WITH SMALL FTD ONLY

*** : FOR VERSION WITH BIG FTD ONLY

## : USE FOR ETF MAX POWER ONLY

FRONT BOARD

TABLE OF CONTENTS

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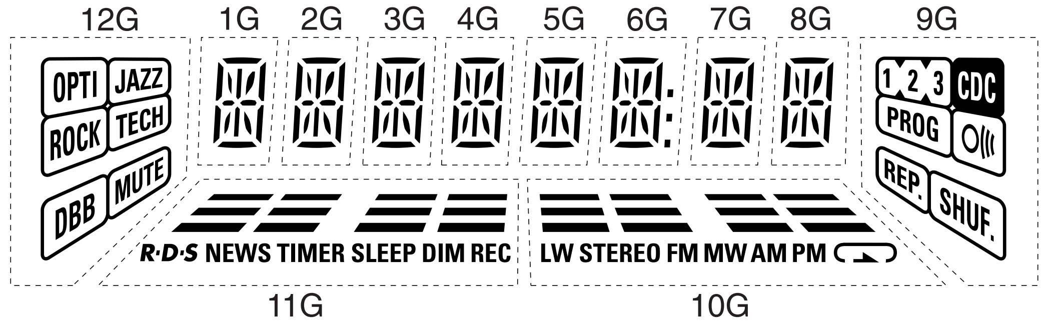
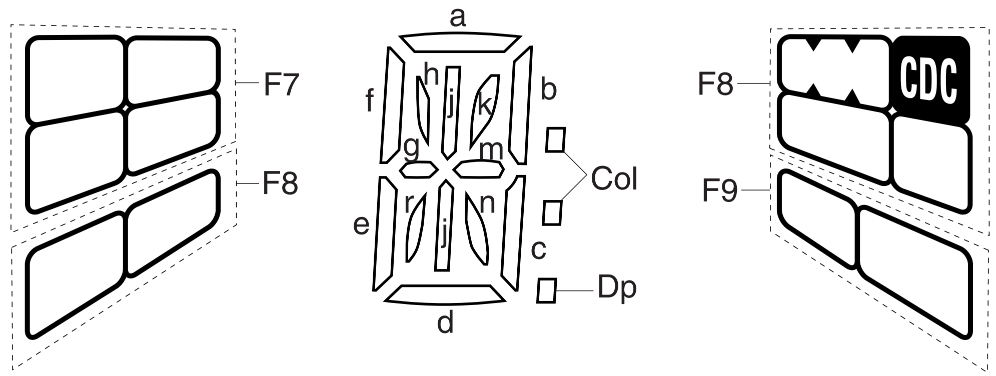
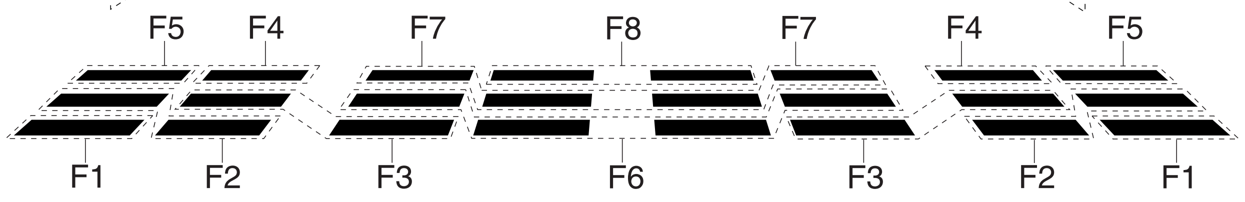
Chip layout 6-5
Electrical parts list... 6-6

FTD DISPLAY PIN CONNECTIONS


12G
1G
2G
3G
4G
5G
6G
7G
8G
9G
OPTI
JAZZ
ROCK
TECH
DBB
MUTE
1 2 3
CDC
PROG
REP.
SHUF.
R·D·S NEWS TIMER SLEEP DIM REC
LW STEREO FM MW AM PM
11G
10G


F7
F8
a
h
j
k
f
b
g
m
Col
e
r
n
c
Dp
d
F8
CDC
F9


F5
F4
F7
F8
F7
F4
F5
F1
F2
F3
F6
F3
F2
F1

	1G - 5G	6G	7G - 8G	9G	10G	11G	12G
P1	a	a	a	**1**	F1	F1	**OPTI**
P2	h	h	h	**2**	F2	F2	**JAZZ**
P3	j	j	j	**3**	F3	F3	**TECH**
P4	k	k	k	**O(((**	F4	F4	**MUTE**
P5	b	b	b	**SHUF.**	F5	F5	**DBB**
P6	f	f	f	**REP.**	F6	F6	**ROCK**
P7	m	m	m	**PROG**	F7	F7	F7
P8	g	g	g	F8	F8	F8	F8
P9	c	c	c	F9	**LW**	**R·D·S**	-
P10	e	e	e	-	**STEREO**	**NEWS**	-
P11	r	r	r	-	**FM**	**TIMER**	-
P12	n	n	n	-	**MW**	**SLEEP**	-
P13	d	d	d	-	**AM**	**DIM**	-
P14	-	Col	-	-	**PM**	**REC**	-
P15	-	Dp	-	-	→	-	-
P16	-	-	-	-	⊂⊃	-	-

Front Board application

A53920	FW-C200/12/21/21M/33
A53930	FW-C220/22/34
A53950	FW-C100/21/21M/22/30/33/34/37
A53970	FW-C250/37
A53980	FW-C250/18/19/21
A53990	FW-C280/22/34
A54000	FW-C290/18/19/21
A54340	FW-C200/30

FEATURES:	A53920	A53930	A53950	A53970	A53980	A53990	A54000	A54340		
RDS	-	x	-	-	-	x	-	-		
Rotary Encoder	x	x	-	x	x	x	x	x		
Jog Encoder	-	-	-	x	x	x	x	-		
Spectrum Analyzer	-	-	-	-	-	x	x	-		
Biplaner LED	x	x	-	x	x	x	x	x		
Small FTD	x	x	x	x	x	-	-	x		
Large FTD	-	-	-	-	-	x	x	-		
NTC	-	-	-	-	x	-	x	-		
LED Control	x	x	-	x	x	x	x	x		

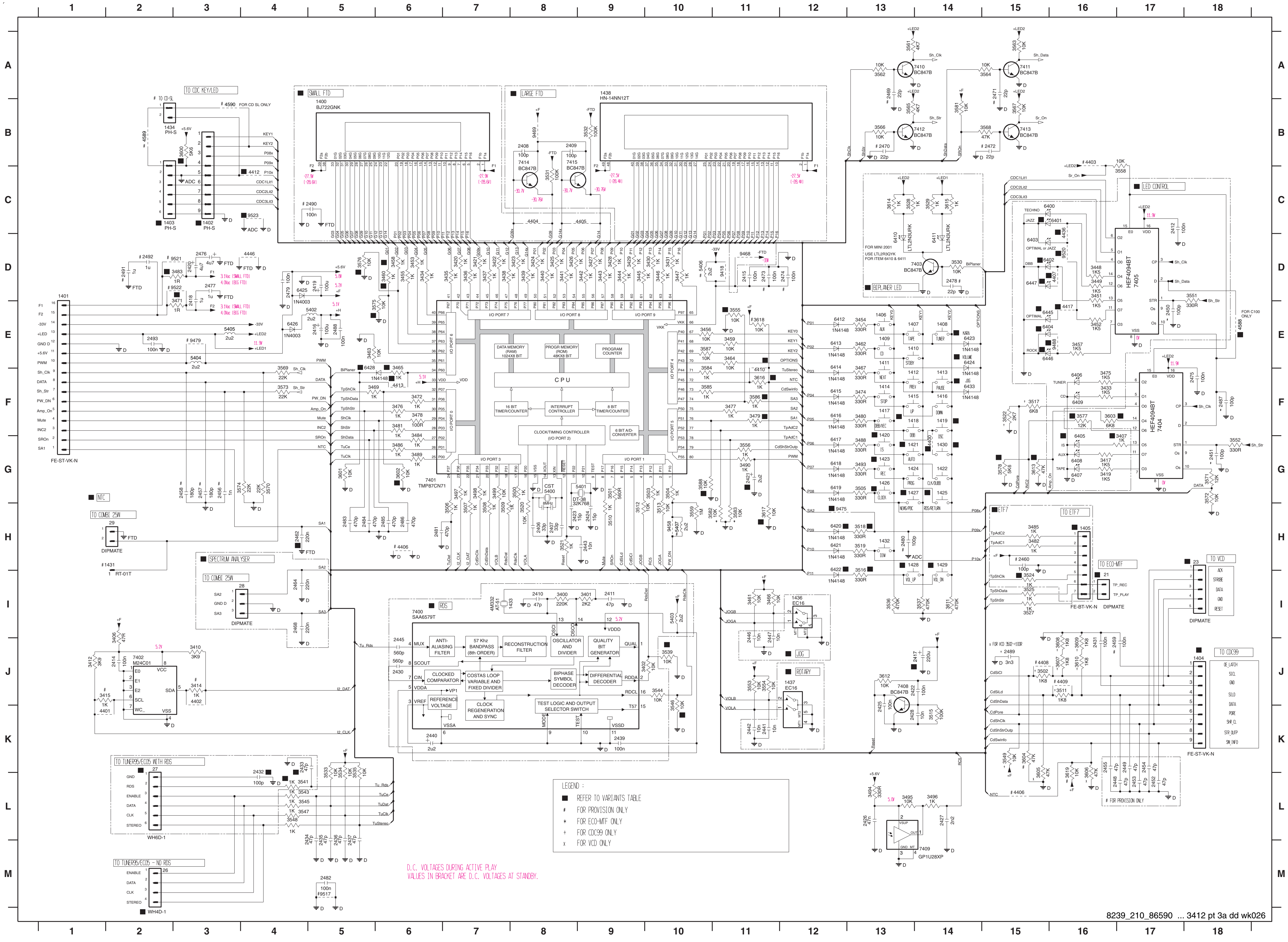
Variations table for Front Board

ITEM NO.	A53920	A53930	A53950	A53970	A53980	A53990	A54000	A54340		
DM21	-	-	x	x	x	-	-	-		
DM23	-	-	-	-	-	-	-	-		
DM26	x	-	x	x	x	-	x	x		
DM27	-	x	-	-	-	x	-	-		
DM29	-	-	-	-	x	-	x	-		
1402	-	-	-	-	-	x	x	-		
1403	x	x	x	x	x	-	-	x		
1404	x	x	x	x	x	x	x	x		
1405	x	x	-	-	-	x	x	x		
1418	-	-	-	-	-	x	x	x		
1419	-	-	-	-	-	x	x	x		
1420	-	-	-	-	-	x	x	x		
1421	x	x	-	-	-	x	x	x		
1423	x	x	-	-	-	x	x	x		
1425	-	x	-	-	-	x	-	-		
1426	x	x	-	-	-	x	x	x		
1427	-	x	-	-	-	x	-	-		
1428	-	-	x	-	-	-	-	-		
1429	-	-	x	-	-	-	-	-		
1430	x	x	x	-	-	-	-	-		
2417	220µF	220µF	-	220µF	220µF	220µF	220µF	220µF		
2421	22µF	22µF	2,2µF	22µF	22µF	22µF	22µF	22µF		
2432	-	100pF	-	-	-	100pF	-	-		
2433	-	47pF	-	-	-	47pF	-	-		
2462	220nF	220nF	-	220nF	220nF	220nF	220nF	220nF		

ITEM NO.	A53920	A53930	A53950	A53970	A53980	A53990	A54000	A54340		
3407	-	-	-	-	-	1k	1k	1k		
3458	-	-	-	-	-	1k	1k	1k		
3460	-	-	-	-	-	1k	1k	1k		
3465	1k	1k	-	1k	1k	1k	1k	1k		
3471	4R7	4R7	4R7	4R7	4R7	1R	1R	1R		
3479	1k	1k	-	1k	1k	1k	1k	1k		
3483	4R7	4R7	4R7	4R7	4R7	1R	1R	1R		
3516	-	-	330R	-	-	-	-	-		
3518	-	-	-	-	-	330R	330R	-		
3524	1k	1k	-	-	-	1k	1k	1k		
3539	10k	-	10k	10k	10k	-	10k	10k		
3541	-	1k	-	-	-	1k	-	-		
3546	10k	-	10k	10k	10k	-	10k	10k		
3555	10k	10k	10k	10k	10k	-	-	10k		
3575	10k	10k	10k	10k	10k	-	-	10k		
3576	10k	10k	10k	10k	10k	-	-	10k		
3577	-	-	-	-	-	12k	12k	-		
3578	-	-	-	-	-	5k6	5k6	-		
3586	-	-	-	-	-	1k	1k	-		
3588	-	-	10k	-	-	-	-	-		
3600	5k6	5k6	5k6	5k6	5k6	-	-	-		
3602	-	-	10k	10k	10k	-	-	-		
3603	10k	10k	6k8	10k	10k	10k	10k	10k		
3613	12k	12k	47k	12k	12k	12k	12k	12k		
3616	-	-	-	-	1k	-	1k	-		
3617	10k	10k	10k	10k	-	10k	-	10k		
4400	x	x	x	-	-	-	-	x		
4407	x	x	-	x	x	-	-	x		
4410	x	x	x	x	-	x	-	x		
4412	-	-	-	-	-	x	x	-		
4413	-	-	x	-	-	-	-	-		
4417	x	x	-	-	-	-	-	x		
4436	x	x	-	-	-	-	-	x		
4588	-	-	x	-	-	-	-	-		
6401	-	-	-	x	x	x	x	-		
6402	-	-	-	x	x	x	x	-		
6404	-	-	-	x	x	x	x	-		
6405	-	-	-	-	-	x	x	-		
6420	-	-	-	-	-	x	x	-		
6422	-	-	x	-	-	-	-	-		
6423	x	-	-	-	x	-	x	-		
6424	-	-	-	x	x	-	-	-		
6428	x	x	-	x	x	x	x	x		
6433	-	-	-	x	x	-	-	-		
6445	x	x	-	-	-	-	-	x		
6446	x	x	-	-	-	-	-	x		
6447	x	x	-	x	x	-	-	x		
9475	x	x	x	x	x	-	-	x		
9488	-	-	-	x	x	x	x	-		
9520	-	-	-	x	x	x	x	-		
9523	x	x	x	x	x	-	-	x		

x = Item in use.

CIRCUIT DIAGRAM


TO CDC KEY/LED
SMALL FTD
1400
BJ722GNK
LARGE FTD
1438
HN-14NN12T
7414 BC847B
7415 BC847B
1401
FE-ST-VK-N
1402 PH-S
1403 PH-S
1434 PH-S
KEY1
KEY2
P08x
P09x
P10x
CDC1Lit1
CDC2Lit2
CDC3Lit3
ADC
FTD
CPU
I/O PORT 7
I/O PORT 8
I/O PORT 9
I/O PORT 6
I/O PORT 0
I/O PORT 3
I/O PORT 1
I/O PORT 4
I/O PORT 5
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48KX8 BIT
PROGRAM COUNTER
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
7401
TMP87CN71
CST 5400 8MHz
5401 DT-38 32K768
NTC
TO COMBI 25W
DIPMATE
1431 RT-01T
SPECTRUM ANALYSER
TO COMBI 25W
DIPMATE
7402 M24C01
RDS
7400
SAA6579T
MUX
ANTI-ALIASING FILTER
57 Khz BANDPASS (8th ORDER)
RECONSTRUCTION FILTER
OSCILLATOR AND DIVIDER
QUALITY BIT GENERATOR
CLOCKED COMPARATOR
COSTAS LOOP VARIABLE AND FIXED DIVIDER
BIPHASE SYMBOL DECODER
DIFFERENTIAL DECODER
REFERENCE VOLTAGE
CLOCK REGENERATION AND SYNC
TEST LOGIC AND OUTPUT SELECTOR SWITCH
TO TUNER95/ECO5 WITH RDS
WH6D-1
TO TUNER95/ECO5 - NO RDS
WH4D-1
7410 BC847B
7411 BC847B
7412 BC847B
7413 BC847B
BIPLANER LED
7403 BC847B
LTL2R3URK
LED CONTROL
7405 HEF4094BT
7404 HEF4094BT
TECHNO
JAZZ
OPTIMAL or JAZZ
DBB
OPTIMAL
ROCK
TUNER
CD
IS
AUX
TAPE
FOR C100 ONLY
1405 FE-BT-VK-N
ETF7
TO ETF7
TO ECO-MTF
DIPMATE
TO VCD
DIPMATE
TO CDC99
1404
FE-ST-VK-N
1436 EC16
JOG
ROTARY
1437 EC16
7408 BC847B
7409
GP1U28XP
KEY0
KEY1
KEY2
OPTIONS
AUX
TAPE
TUNER
CD
NEXT
STOP
PREV
PAUSE
VOLUME
JOG
STBY
UP
DOWN
REC
DBB/VEC
OSC
IS
DBB
AUTO
CLK/DUBB
PROG
CLOCK
NEWS/PIOC
RDS/RETURN
VOL UP
VOL DN
FOR PROVISION ONLY

LEGEND :

■ REFER TO VARIANTS TABLE

# FOR PROVISION ONLY

* FOR ECO-MTF ONLY

+ FOR CDC99 ONLY

x FOR VCD ONLY

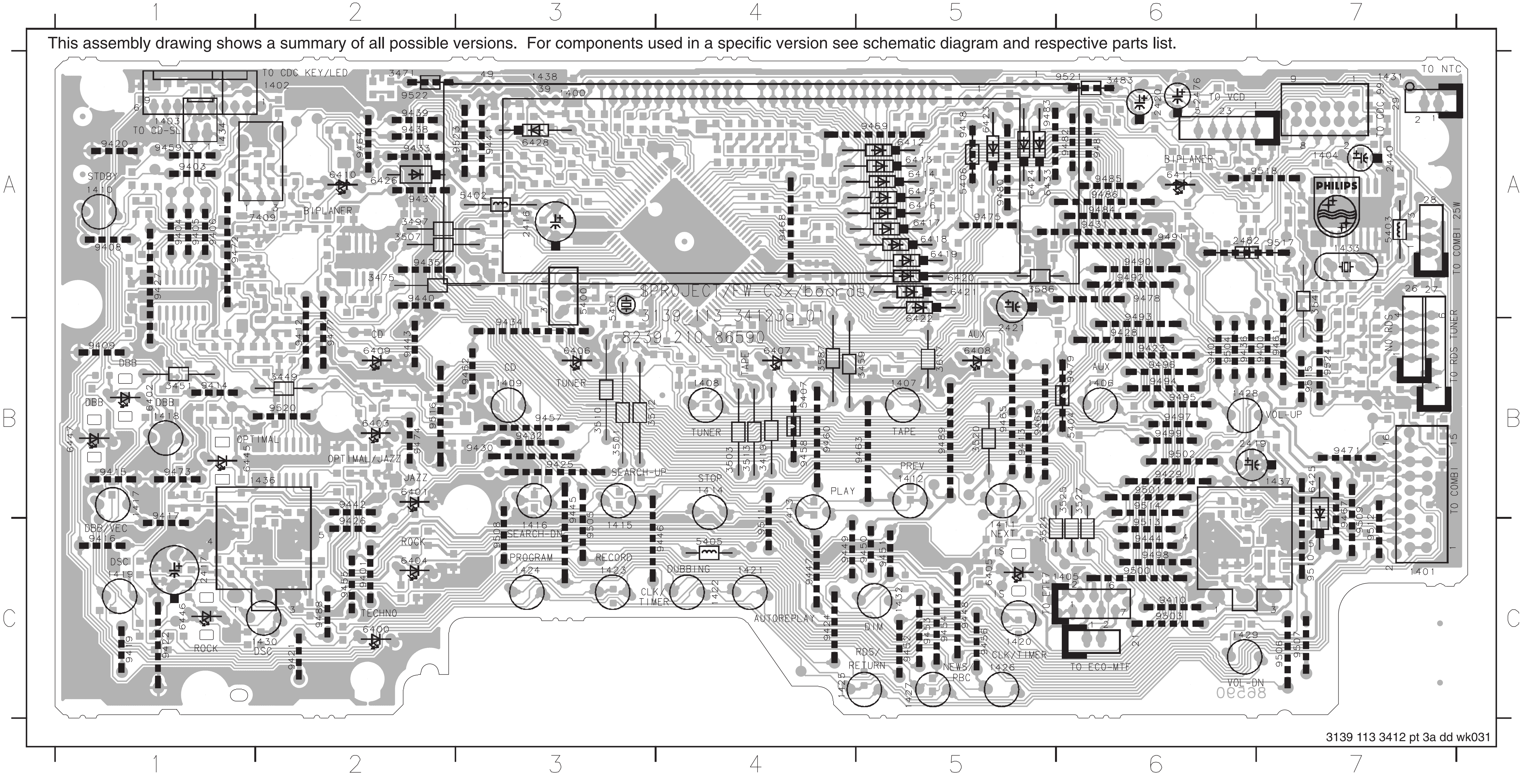
D.C. VOLTAGES DURING ACTIVE PLAY
VALUES IN BRACKET ARE D.C. VOLTAGES AT STANDBY.

8239_210_86590 ... 3412 pt 3a dd wk026

21	I16
23	H18
26	M2
27	K2
28	I3
29	H2
1400	B5
1401	D1
1402	C3
1403	C2
1404	J18
1405	H16
1406	E13
1407	E13
1408	E14
1409	E13
1410	E13
1411	E13
1412	F13
1413	F14
1414	F13
1415	F13
1416	F14
1417	F13
1418	F13
1419	F14
1420	G13
1421	G13
1422	G14
1423	G13
1424	G13
1425	G14
1426	G13
1427	G13
1428	H13
1429	H14
1430	G14
1431	H2
1432	H13
1433	I7
1434	B2
1436	I12
1437	J12
1438	A9
2406	H8
2407	H8
2408	B8
2409	B8
2410	I8
2411	I9
2412	C17
2414	J2
2415	D11
2416	E5
2417	J14
2418	D3
2419	D5
2420	D3
2421	G11
2422	J13
2423	H8
2424	H9
2425	K13
2426	L13
2427	L14
2428	K13
2430	J6
2431	J16
2432	L4
2433	K4
2434	L4
2435	M5
2436	M5
2437	M5
2439	K9
2440	K6
2441	K11
2442	K11
2443	H9
2445	J6
2446	I11
2447	I11
2448	L16
2449	K17
2450	E17
2451	G18
2452	L17
2453	L17
2454	K17
2455	K16
2456	G3
2457	G3
2458	G3
2459	J16
2460	H15
2462	H4
2464	I4
2468	I4
2469	A13
2470	B13
2471	A15
2472	B15
2473	D11
2474	D12
2475	F18
2476	D3
2477	D3
2478	D14
2479	D4
2480	H13
2481	H6
2482	M5
2483	H5
2484	H5
2485	H6
2486	H6
2487	F18
2488	E5
2489	J15
2490	C5
2491	D2
2492	D2
2493	E2
3400	I8
3401	I9
3402	J10
3406	J2
3407	G17
3410	J3
3412	J1
3414	J3
3415	J1
3417	G16
3419	G16
3420	D7
3421	D7
3422	D7
3423	D8
3424	D8
3425	D8
3426	D8
3427	D9
3428	D9
3429	D9
3430	D10
3431	D10
3433	F16
3434	D6
3435	D7
3436	D7
3437	D7
3438	D7
3439	D8
3440	D8
3441	D8
3442	D9
3443	D9
3444	D9
3445	D9
3446	D10
3447	D10
3448	D16
3449	D16
3451	D16
3452	E16
3453	D6
3454	E13
3455	D6
3456	E10
3457	E16
3458	D6
3459	E11
3460	D6
3461	I11
3462	E13
3463	E5
3464	E11
3465	F6
3466	I11
3467	F13
3469	F5
3471	E3
3472	F6
3474	F13
3475	F16
3476	F6
3477	F11
3478	F6
3479	F11
3480	F13
3481	F6
3482	H15
3483	D3
3484	G6
3485	H15
3486	G6
3488	G13
3489	G6
3490	G11
3493	G13
3494	L13
3495	L13
3496	L14
3497	G7
3498	G7
3499	G7
3500	G8
3501	G9
3502	J15
3503	G10
3504	G10
3505	G13
3506	H7
3507	H7
3508	H7
3509	H7
3510	H9
3511	J16
3512	H9
3513	H10
3515	K14
3516	I13
3517	F15
3518	H13
3519	H13
3520	H8
3521	H8
3522	F15
3524	I15
3525	I15
3527	I15
3528	C13
3529	C14
3530	D14
3531	C8
3532	B9
3533	L5
3534	L5
3535	L5
3536	I13
3537	I14
3539	J10
3541	L4
3543	L4
3544	J10
3545	L4
3546	K10
3547	L4
3548	L4
3549	K15
3551	D18
3552	G18
3553	J11
3554	J11
3555	E11
3556	G11
3558	C17
3559	H10
3561	A13
3562	A13
3563	A15
3564	A15
3565	B13
3566	B13
3567	B15
3568	B15
3569	F4
3570	G4
3571	G18
3572	G18
3573	F4
3574	G4
3575	E6
3576	D5
3577	F16
3578	G15
3581	B14
3582	H10
3583	H11
3584	F10
3585	F10
3586	F11
3587	E10
3588	G10
3600	B3
3601	G5
3602	G6
3603	F16
3604	K15
3605	L15
3606	L16
3607	J16
3608	J16
3609	J16
3610	J16
3611	I14
3612	J13
3613	G15
3614	C13
3615	C14
3616	F11
3617	H11
3618	E11
3619	L16
4400	G14
4401	K1
4402	J3
4403	B16
4404	C8
4405	C9
4406	L15
4406	H6
4407	D16
4408	J15
4409	J16
4410	E11
4412	C4
4413	F6
4417	E16
4436	C16
4446	D4
4588	E18
4589	B2
4590	B3
5400	G8
5401	G9
5402	E5
5403	I10
5404	E3
5405	E3
5406	D10
5407	H10
6400	C16
6401	C16
6402	D15
6403	D15
6404	E15
6405	G16
6406	F16
6407	G16
6408	G16
6409	F16
6410	D13
6411	D14
6412	E12
6413	E12
6414	F12
6415	F12
6416	F12
6417	G12
6418	G12
6419	G12
6420	H12
6421	H12
6422	I12
6423	E14
6424	E14
6425	D4
6426	E4
6428	F5
6433	F14
6445	E15
6446	E15
6447	D15
7400	I6
7401	G6
7402	J2
7403	D14
7404	F17
7405	D17
7408	J13
7409	M14
7410	A13
7411	A15
7412	B13
7413	B15
7414	B8
7415	B8
9418	D11
9458	H10
9468	D11
9469	B8
9475	H12
9479	E3
9488	E16
9517	M5
9520	D16
9521	D3
9522	D3
9523	C4

COMPONENT LAYOUT

21	C6	1406	B6	1418	B1	1430	C2	2421	B5	3501	B3	3587	B4	6402	B1	6414	A5	6426	A2	9405	A1	9419	C1	9431	A6	9443	B2	9455	C2	9467	B7	9481	A6	9494	B6	9506	C7	9518	A7
23	A6	1407	B5	1419	C1	1431	A7	2440	A7	3503	B4	3617	B5	6403	B2	6415	A5	6428	A3	9406	A1	9420	A1	9432	B3	9444	C6	9456	C5	9468	A4	9482	A6	9495	B6	9507	C7	9520	B2
26	A7	1408	B4	1420	C5	1432	C5	2476	A6	3507	A2	5400	A3	6404	C2	6416	A5	6433	A5	9408	A1	9421	C2	9433	A2	9445	B3	9457	B3	9469	A5	9483	A5	9496	B6	9508	C3	9521	A6
27	A7	1409	B3	1421	C4	1433	A7	2482	A6	3510	B3	5401	A3	6405	C5	6417	A5	6445	B1	9409	B1	9422	C1	9434	B3	9446	C4	9458	B4	9471	B7	9484	A6	9497	B6	9509	C7	9522	A2
28	A7	1410	A1	1422	C4	1434	A1	3419	B4	3512	B3	5402	A3	6406	B3	6418	A5	6446	C1	9410	C6	9423	B6	9435	A2	9447	C4	9459	A1	9472	A1	9485	A6	9498	C6	9510	C7	9523	A3
29	A7	1411	C5	1423	C3	1436	B2	3449	B2	3513	B4	5403	A7	6407	B4	6419	A5	6447	B1	9412	B2	9424	C4	9436	B6	9448	C5	9460	B4	9473	B1	9486	A6	9499	B6	9511	C4	9524	B7
1400	A3	1412	B5	1424	C3	1437	B7	3451	B1	3520	B5	5404	B6	6408	B5	6420	A5	7409	A2	9413	B5	9425	B3	9437	A2	9449	C4	9461	B7	9474	B2	9488	C2	9500	C6	9512	C7		
1401	C7	1413	B4	1425	C4	1438	A3	3459	B5	3524	C5	5405	C4	6409	B2	6421	A5	9400	B7	9414	B1	9426	C2	9438	A2	9450	C5	9462	B3	9475	A5	9489	B5	9501	B6	9513	C6		
1402	A2	1414	B4	1426	C5	2416	A3	3471	A2	3525	B6	5406	A5	6410	A2	6422	B5	9401	C2	9415	B1	9427	A1	9439	A2	9451	C5	9463	B5	9477	B2	9490	A6	9502	B6	9514	B6		
1403	A1	1415	C3	1427	C5	2417	C1	3475	A2	3527	B6	5407	B4	6411	A6	6423	A5	9402	B6	9416	C1	9428	B6	9440	A2	9452	C5	9464	A2	9478	A6	9491	A6	9503	C6	9515	B7		
1404	A7	1416	C3	1428	B6	2419	B6	3483	A6	3541	A7	6400	C2	6412	A5	6424	A5	9403	A1	9417	B1	9429	B6	9441	A3	9453	C5	9465	B5	9479	B6	9492	A6	9504	B6	9516	B2		
1405	C6	1417	B1	1429	C6	2420	A6	3497	A2	3586	A5	6401	B2	6413	A5	6425	B7	9404	A1	9418	A5	9430	B3	9442	B2	9454	C5	9466	B5	9480	A5	9493	A6	9505	C3	9517	A7		



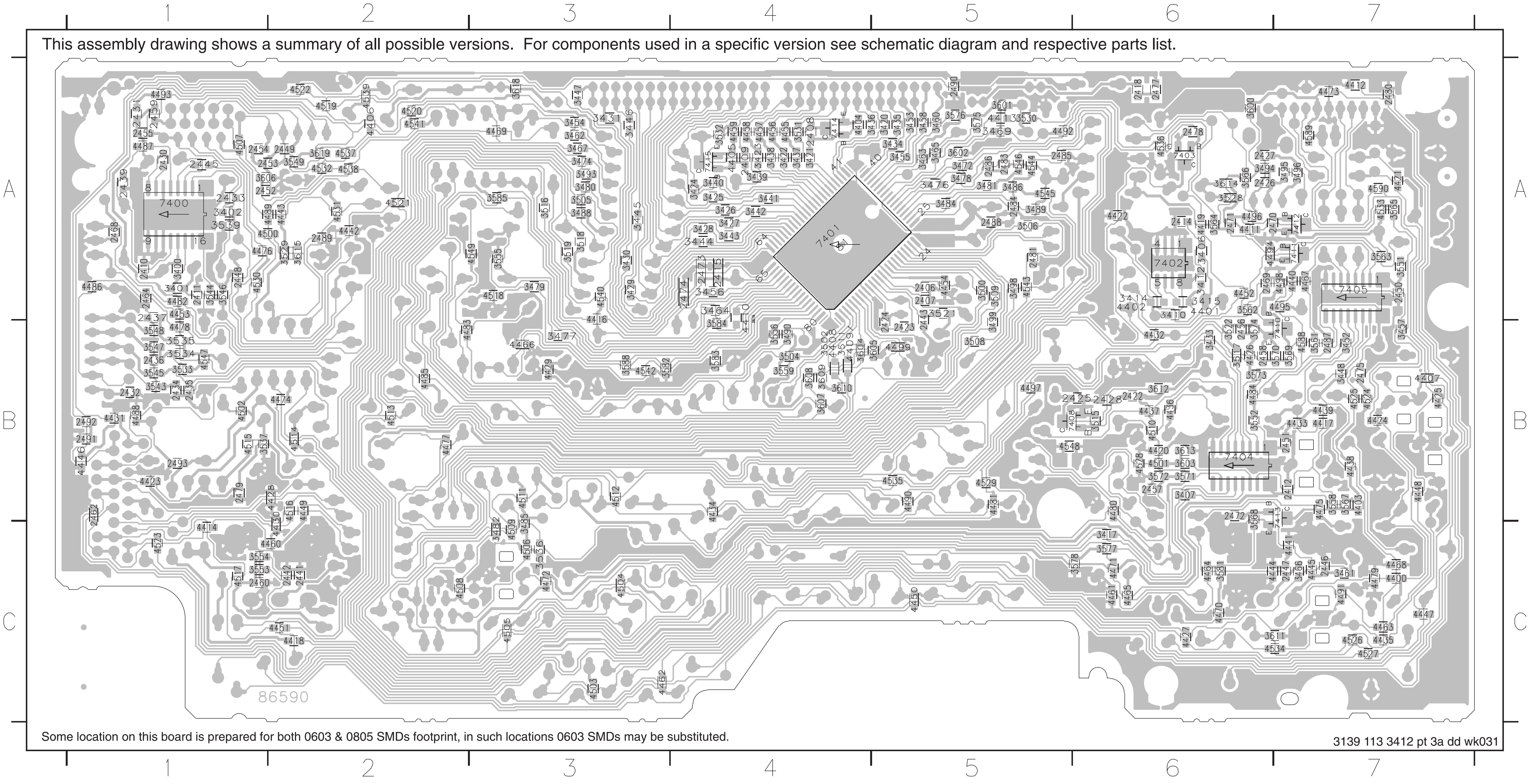
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

1
2
3
4
5
6
7
A
B
C
TO CDC KEY/LED
1402
1403
TO CD-SL
1434
7409
STDBY
1410
BIPLANER
1400
1438
6428
2416
5402
3497
3507
3475
5400
5401
$PROJECT/FW-C3x/boards/
3139 113 34123a 01
8239 210 86590
TO VCD
TO CDC 99
1431
TO NTC
1404
PHILIPS
1433
TO COMBI 25W
NO RDS
TO RDS TUNER
TO COMBI
1401
CD
1409
TUNER
1408
TAPE
1407
AUX
1406
VOL-UP
1428
DBB
1418
OPTIMAL
OPTIMAL/JAZZ
JAZZ
ROCK
TECHNO
DBB/VEC
1417
DSC
1419
1436
1430
SEARCH-UP
SEARCH-DN
1416
1415
STOP
1414
PLAY
1413
PREV
1412
NEXT
1411
PROGRAM
1424
RECORD
1423
CLK/TIMER
DUBBING
1422
1421
AUTOREPLAY
DIM
RDS/RETURN
1425
NEWS/PBC
1427
CLK/TIMER
1420
1426
TO-ET-T
1405
TO ECO-MTF
1429
VOL-DN
1437
86590
3139 113 3412 pt 3a dd wk031

CHIP LAYOUT

2406	A5	2432	B1	2454	A1	2479	B1	3410	A6	3435	A5	3457	B7	3482	C3	3509	A5	3539	A1	3564	A6	3585	A3	3618	A3	4418	C2	4437	B6	4456	A4	4475	B7	4494	A6	4513	B2	4532	A2	4589	A7
2407	A5	2433	A1	2455	A1	2480	A7	3412	A6	3436	A4	3458	A5	3484	A5	3511	B4	3543	B1	3565	A7	3588	B3	3619	A2	4419	A6	4438	B7	4457	A4	4476	A1	4495	A7	4514	B2	4533	A7	4590	A7
2408	A4	2434	B1	2456	B6	2481	A5	3414	A6	3437	A4	3460	A5	3485	C3	3515	B6	3544	A1	3566	A6	3600	A6	4400	C7	4420	B6	4439	B7	4458	A4	4477	B2	4496	A6	4515	B1	4534	C7	7400	A1
2409	A4	2435	B1	2457	B6	2483	A5	3415	A6	3438	A4	3461	C7	3486	A5	3516	A3	3545	B1	3567	B7	3601	A5	4401	A6	4421	A7	4440	A7	4459	A4	4478	B1	4497	B5	4516	B2	4535	B5	7401	A4
2410	A1	2436	B1	2458	B6	2484	A5	3417	C6	3439	A4	3462	A3	3488	A3	3517	B6	3546	A1	3568	B6	3602	A5	4402	A6	4422	A6	4441	C7	4460	C2	4479	C7	4498	A7	4517	C1	4536	A6	7402	A6
2411	A1	2437	A1	2459	A1	2485	A5	3420	A5	3440	A4	3463	A5	3489	A5	3518	A3	3547	B1	3569	B7	3603	B6	4403	B7	4423	B1	4442	A2	4461	C6	4480	B6	4499	B5	4518	A3	4537	A2	7403	A6
2412	B7	2439	A1	2460	C1	2486	A5	3421	A4	3441	A4	3464	A4	3490	B4	3519	A3	3548	B1	3570	B7	3604	B4	4404	A4	4424	B7	4443	A2	4462	C3	4481	B5	4500	A1	4519	A2	4538	A2	7404	B6
2414	A6	2441	C2	2462	B1	2487	B7	3422	A4	3442	A4	3465	A5	3493	A3	3521	A5	3549	A2	3571	B6	3605	B5	4405	A4	4425	B7	4444	C6	4463	C7	4482	A1	4501	B6	4520	A2	4539	A2	7405	A7
2415	A4	2442	C2	2464	A1	2488	A5	3423	A4	3443	A4	3466	C7	3494	A6	3522	B6	3551	A7	3572	B6	3606	A1	4406	A2	4426	B6	4445	C7	4464	C6	4483	B2	4502	B1	4521	A2	4540	A3	7408	B5
2418	A6	2443	A5	2468	A1	2489	A2	3424	A4	3444	A4	3467	A3	3495	A7	3528	A6	3552	B6	3573	B6	3607	B4	4407	B7	4427	C6	4446	B1	4465	C6	4484	B6	4503	C3	4522	A2	4541	A2	7410	B7
2422	B6	2445	A1	2469	A6	2490	A5	3425	A4	3445	A3	3469	A5	3496	A7	3529	A2	3553	C1	3574	B6	3608	B4	4408	B4	4428	B2	4447	C7	4466	B3	4485	B2	4504	C3	4523	C1	4542	B3	7411	A7
2423	B5	2446	C7	2470	A6	2491	B1	3426	A4	3446	A3	3472	A5	3498	A5	3530	A5	3554	C1	3575	A5	3609	B4	4409	B4	4429	B3	4448	B7	4467	A7	4486	A1	4505	C3	4524	B7	4543	A5	7412	A7
2424	B5	2447	C7	2471	A6	2492	B1	3427	A4	3447	A3	3474	A3	3499	B5	3531	A4	3555	A3	3576	A5	3610	B4	4410	A4	4430	C2	4449	B2	4468	C7	4487	A1	4506	C3	4525	B7	4544	A5	7413	B7
2425	B6	2448	A1	2472	B6	2493	B1	3428	A4	3448	B7	3476	A5	3500	A5	3532	A4	3556	B4	3577	C6	3611	C7	4411	A6	4431	B1	4450	C5	4469	A3	4488	B1	4507	A1	4526	C7	4545	A5	7414	A4
2426	A6	2449	A2	2473	A4	3400	A1	3429	A3	3452	B7	3477	B3	3502	B4	3533	B1	3558	B7	3578	C6	3612	B6	4412	A7	4432	B6	4451	C2	4470	C6	4489	A1	4508	C2	4527	C7	4546	A5	7415	A4
2427	A6	2450	A7	2474	A4	3401	A1	3430	A3	3453	A5	3478	A5	3504	B4	3534	B1	3559	B4	3581	C6	3613	B6	4413	A5	4433	B7	4452	A6	4471	C6	4490	B5	4509	C3	4528	B6	4547	B1		
2428	B6	2451	B7	2475	B7	3402	A1	3431	A3	3454	A3	3479	A3	3505	A3	3535	B1	3561	B7	3582	B3	3614	A6	4414	C1	4434	B4	4453	A1	4472	C3	4491	C7	4510	B6	4529	B5	4548	B5		
2430	A1	2452	A1	2477	A6	3406	A6	3433	B6	3455	A5	3480	A3	3506	A5	3536	C3	3562	A6	3583	B4	3615	A2	4416	A3	4435	C7	4454	A5	4473	A7	4492	A5	4511	B3	4530	A1	4549	A3		
2431	A1	2453	A1	2478	A6	3407	B6	3434	A5	3456	A4	3481	A5	3508	B5	3537	B1	3563	A7	3584	B4	3616	A4	4417	B7	4436	B6	4455	A4	4474	B2	4493	A1	4512	B3	4531	A2	4588	B7		

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.



Some location on this board is prepared for both 0603 & 0805 SMDs footprint, in such locations 0603 SMDs may be substituted.

3139 113 3412 pt 3a dd wk031

ELECTRICAL PARTS LIST - FRONT BOARD

MISCELLANEOUS

1400	3139 110 52070	FTD Display BJ722GNK
1401	2422 025 14546	Flex Socket 16pin Hort.
1404	4822 265 11531	Flex Socket 9pin Hort.
1406	4822 276 13775	Tact Switch
1407	4822 276 13775	Tact Switch
1408	4822 276 13775	Tact Switch
1409	4822 276 13775	Tact Switch
1410	4822 276 13775	Tact Switch
1411	4822 276 13775	Tact Switch
1412	4822 276 13775	Tact Switch
1413	4822 276 13775	Tact Switch
1414	4822 276 13775	Tact Switch
1415	4822 276 13775	Tact Switch
1416	4822 276 13775	Tact Switch
1422	4822 276 13775	Tact Switch
1424	4822 276 13775	Tact Switch
1428	4822 276 13775	Tact Switch
1429	4822 276 13775	Tact Switch
1430	4822 276 13775	Tact Switch
1432	4822 276 13775	Tact Switch

CAPACITORS

2406	5322 122 32659	33pF 5% 50V
2407	5322 122 32659	33pF 5% 50V
2414	4822 126 13838	100nF +80/-20% 50V
2415	4822 126 14585	100nF 10% 50V
2416	4822 124 23432	100µF 20% 10V
2418	4822 126 14043	1µF +80/-20% 16V
2419	4822 124 41584	100µF 20% 10V
2420	4822 124 12032	4,7µF 20% 50V
2421	4822 124 22652	2,2µF 20% 50V
2422	4822 126 14585	100nF 10% 50V
2423	4822 126 13486	15pF 2% 63V
2424	4822 126 13486	15pF 2% 63V
2425	4822 126 13838	100nF +80/-20% 50V
2426	4822 126 13751	47nF 10% 63V
2427	4822 122 33127	2,2nF 10% 63V
2428	4822 122 33177	10nF 20% 50V
2431	4822 126 14585	100nF 10% 50V
2434	4822 126 13692	47pF 1% 63V
2435	4822 126 13692	47pF 1% 63V
2436	4822 126 13692	47pF 1% 63V
2437	4822 126 13692	47pF 1% 63V
2443	4822 122 33177	10nF 20% 50V
2475	4822 126 14585	100nF 10% 50V
2476	4822 124 12032	4,7µF 20% 50V
2477	4822 126 14043	1µF +80/-20% 16V
2479	4822 126 14585	100nF 10% 50V
2481	5322 122 32268	470pF 10% 50V
2482	4822 126 12882	100nF +80/-20% 50V
2483	5322 122 32268	470pF 10% 50V
2484	5322 122 32268	470pF 10% 50V
2485	5322 122 32268	470pF 10% 50V
2486	5322 122 32268	470pF 10% 50V
2488	4822 126 14585	100nF 10% 50V
2489	4822 122 33891	3,3nF 10% 63V
2493	4822 126 14585	100nF 10% 50V

RESISTORS

3406	4822 051 20479	47R 5% 0,1W
3410	4822 051 20392	3k9 5% 0,1W
3412	4822 051 20392	3k9 5% 0,1W
3420	4822 051 10102	1k 2% 0,25W
3421	4822 051 10102	1k 2% 0,25W
3422	4822 051 10102	1k 2% 0,25W
3423	4822 051 10102	1k 2% 0,25W
3424	4822 051 10102	1k 2% 0,25W
3425	4822 051 10102	1k 2% 0,25W
3426	4822 051 10102	1k 2% 0,25W
3427	4822 051 10102	1k 2% 0,25W
3428	4822 051 10102	1k 2% 0,25W
3429	4822 051 10102	1k 2% 0,25W
3430	4822 051 10102	1k 2% 0,25W
3431	4822 051 10102	1k 2% 0,25W
3434	4822 051 10102	1k 2% 0,25W
3435	4822 051 10102	1k 2% 0,25W
3436	4822 051 10102	1k 2% 0,25W
3437	4822 051 10102	1k 2% 0,25W
3438	4822 051 10102	1k 2% 0,25W
3439	4822 051 10102	1k 2% 0,25W
3440	4822 051 10102	1k 2% 0,25W
3441	4822 051 10102	1k 2% 0,25W
3442	4822 051 10102	1k 2% 0,25W
3443	4822 051 10102	1k 2% 0,25W
3444	4822 051 10102	1k 2% 0,25W
3445	4822 051 10102	1k 2% 0,25W
3446	4822 051 10102	1k 2% 0,25W
3447	4822 051 10102	1k 2% 0,25W
3453	4822 051 10102	1k 2% 0,25W
3454	4822 117 13577	330R 1% 0,1W
3455	4822 051 10102	1k 2% 0,25W
3456	4822 117 10833	10k 1% 0,1W
3459	4822 050 21003	10k 1% 0,6W
3461	4822 117 10833	10k 1% 0,1W
3462	4822 117 13577	330R 1% 0,1W
3463	4822 117 10833	10k 1% 0,1W
3464	4822 117 10833	10k 1% 0,1W
3466	4822 117 10833	10k 1% 0,1W
3467	4822 117 13577	330R 1% 0,1W
3469	4822 051 10102	1k 2% 0,25W
3471	4822 050 24708	4R7 1% 0,6W
3472	4822 051 10102	1k 2% 0,25W
3474	4822 117 13577	330R 1% 0,1W
3476	4822 051 10102	1k 2% 0,25W

ELECTRICAL PARTS LIST - FRONT BOARD

3477	4822 051 10102	1k 2% 0,25W
3478	4822 051 20101	100R 5% 0,1W
3480	4822 117 13577	330R 1% 0,1W
3481	4822 051 10102	1k 2% 0,25W
3483	4822 050 24708	4R7 1% 0,6W
3484	4822 051 10102	1k 2% 0,25W
3486	4822 051 10102	1k 2% 0,25W
3488	4822 117 13577	330R 1% 0,1W
3489	4822 051 10102	1k 2% 0,25W
3490	4822 051 10102	1k 2% 0,25W
3493	4822 117 13577	330R 1% 0,1W
3494	4822 117 13577	330R 1% 0,1W
3495	4822 117 10833	10k 1% 0,1W
3496	4822 051 10102	1k 2% 0,25W
3497	4822 050 11002	1k 1% 0,4W
3498	4822 051 10102	1k 2% 0,25W
3499	4822 117 10833	10k 1% 0,1W
3500	4822 051 10102	1k 2% 0,25W
3501	4822 116 52226	560R 5% 0,5W
3502	4822 051 20182	1k8 5% 0,1W
3503	4822 050 11002	1k 1% 0,4W
3504	4822 051 10102	1k 2% 0,25W
3505	4822 117 13577	330R 1% 0,1W
3506	4822 051 10102	1k 2% 0,25W
3507	4822 050 11002	1k 1% 0,4W
3508	4822 051 10102	1k 2% 0,25W
3509	4822 051 10102	1k 2% 0,25W
3510	4822 050 11002	1k 1% 0,4W
3511	4822 051 20182	1k8 5% 0,1W
3512	4822 050 21003	10k 1% 0,6W
3513	4822 050 21003	10k 1% 0,6W
3515	4822 117 10837	100k 1% 0.1W
3516	4822 117 13577	330R 1% 0,1W
3517	4822 117 11507	6k8 1% 0,1W
3519	4822 117 13577	330R 1% 0,1W
3520	4822 050 21003	10k 1% 0,6W
3521	4822 051 10102	1k 2% 0,25W
3522	4822 117 12955	2k7 1% 0,1W
3525	4822 050 11002	1k 1% 0,4W
3527	4822 050 11002	1k 1% 0,4W
3533	4822 117 10833	10k 1% 0,1W
3534	4822 117 10833	10k 1% 0,1W
3535	4822 117 10833	10k 1% 0,1W
3536	4822 051 20474	470k 5% 0,1W
3537	4822 051 20474	470k 5% 0,1W
3539	4822 117 10833	10k 1% 0,1W
3543	4822 051 10102	1k 2% 0,25W
3545	4822 051 10102	1k 2% 0,25W
3546	4822 117 10833	10k 1% 0,1W
3547	4822 051 10102	1k 2% 0,25W
3548	4822 051 10102	1k 2% 0,25W
3549	4822 117 10833	10k 1% 0,1W
3552	4822 117 13577	330R 1% 0,1W
3553	4822 117 10833	10k 1% 0,1W
3554	4822 117 10833	10k 1% 0,1W
3555	4822 117 10833	10k 1% 0,1W
3556	4822 051 10102	1k 2% 0,25W
3558	4822 117 10833	10k 1% 0,1W
3559	4822 051 20105	1M 5% 0,1W
3561	4822 051 20472	4k7 5% 0,1W
3562	4822 117 10833	10k 1% 0,1W
3563	4822 117 10833	10k 1% 0,1W
3564	4822 117 10833	10k 1% 0,1W
3565	4822 051 20472	4k7 5% 0,1W
3566	4822 117 10833	10k 1% 0,1W
3567	4822 117 10833	10k 1% 0,1W
3568	4822 117 10834	47k 1% 0,1W
3569	4822 051 20223	22k 5% 0,1W
3570	4822 051 20223	22k 5% 0,1W
3571	4822 117 11383	12k 1% 0,1W
3572	4822 117 10833	10k 1% 0,1W
3573	4822 051 20223	22k 5% 0,1W
3574	4822 051 20223	22k 5% 0,1W
3575	4822 117 10833	10k 1% 0,1W
3576	4822 117 10833	10k 1% 0,1W
3581	4822 117 10833	10k 1% 0,1W
3582	4822 117 10833	10k 1% 0,1W
3583	4822 117 10833	10k 1% 0,1W
3584	4822 051 10102	1k 2% 0,25W
3585	4822 051 10102	1k 2% 0,25W
3587	4822 050 21003	10k 1% 0,6W
3588	4822 117 10833	10k 1% 0,1W
3600	4822 051 20562	5k6 5% 0,1W
3601	4822 117 10833	10k 1% 0,1W
3602	4822 117 10833	10k 1% 0,1W
3603	4822 117 11507	6k8 1% 0,1W
3607	4822 051 20182	1k8 5% 0,1W
3608	4822 051 20182	1k8 5% 0,1W
3609	4822 051 20182	1k8 5% 0,1W
3610	4822 051 20182	1k8 5% 0,1W
3611	4822 051 20474	470k 5% 0,1W
3612	4822 117 10833	10k 1% 0,1W
3613	4822 117 10834	47k 1% 0,1W
3617	4822 050 21003	10k 1% 0,6W
4400	4822 051 20008	0R Jumper 0805
4401	4822 051 20008	0R Jumper 0805
4402	4822 051 20008	0R Jumper 0805
4404	4822 051 20008	0R Jumper 0805
4405	4822 051 20008	0R Jumper 0805
4407	4822 051 20008	0R Jumper 0805
4410	4822 051 20008	0R Jumper 0805
4413	4822 051 20008	0R Jumper 0805
4414	4822 051 20008	0R Jumper 0805
4416	4822 051 20008	0R Jumper 0805

ELECTRICAL PARTS LIST - FRONT BOARD

RESISTORS

4417	4822 051 20008	0R Jumper 0805
4418	4822 051 20008	0R Jumper 0805
4419	4822 051 20008	0R Jumper 0805
4420	4822 051 20008	0R Jumper 0805
4421	4822 051 20008	0R Jumper 0805
4422	4822 051 20008	0R Jumper 0805
4423	4822 051 20008	0R Jumper 0805
4424	4822 051 20008	0R Jumper 0805
4425	4822 051 20008	0R Jumper 0805
4426	4822 051 20008	0R Jumper 0805
4427	4822 051 20008	0R Jumper 0805
4428	4822 051 20008	0R Jumper 0805
4429	4822 051 20008	0R Jumper 0805
4430	4822 051 20008	0R Jumper 0805
4431	4822 051 20008	0R Jumper 0805
4432	4822 051 20008	0R Jumper 0805
4433	4822 051 20008	0R Jumper 0805
4434	4822 051 20008	0R Jumper 0805
4435	4822 051 20008	0R Jumper 0805
4436	4822 051 20008	0R Jumper 0805
4437	4822 051 20008	0R Jumper 0805
4438	4822 051 20008	0R Jumper 0805
4439	4822 051 20008	0R Jumper 0805
4440	4822 051 20008	0R Jumper 0805
4441	4822 051 20008	0R Jumper 0805
4442	4822 051 20008	0R Jumper 0805
4443	4822 051 20008	0R Jumper 0805
4444	4822 051 20008	0R Jumper 0805
4445	4822 051 20008	0R Jumper 0805
4446	4822 051 20008	0R Jumper 0805
4447	4822 051 20008	0R Jumper 0805
4448	4822 051 20008	0R Jumper 0805
4449	4822 051 20008	0R Jumper 0805
4450	4822 051 20008	0R Jumper 0805
4451	4822 051 20008	0R Jumper 0805
4452	4822 051 20008	0R Jumper 0805
4453	4822 051 20008	0R Jumper 0805
4454	4822 051 20008	0R Jumper 0805
4455	4822 051 20008	0R Jumper 0805
4456	4822 051 20008	0R Jumper 0805
4457	4822 051 20008	0R Jumper 0805
4458	4822 051 20008	0R Jumper 0805
4459	4822 051 20008	0R Jumper 0805
4460	4822 051 20008	0R Jumper 0805
4461	4822 051 20008	0R Jumper 0805
4462	4822 051 20008	0R Jumper 0805
4463	4822 051 20008	0R Jumper 0805
4464	4822 051 20008	0R Jumper 0805
4465	4822 051 20008	0R Jumper 0805
4466	4822 051 20008	0R Jumper 0805
4467	4822 051 20008	0R Jumper 0805
4468	4822 051 20008	0R Jumper 0805
4469	4822 051 20008	0R Jumper 0805
4470	4822 051 20008	0R Jumper 0805
4471	4822 051 20008	0R Jumper 0805
4472	4822 051 20008	0R Jumper 0805
4473	4822 051 20008	0R Jumper 0805
4474	4822 051 20008	0R Jumper 0805
4475	4822 051 20008	0R Jumper 0805
4476	4822 051 20008	0R Jumper 0805
4477	4822 051 20008	0R Jumper 0805
4478	4822 051 20008	0R Jumper 0805
4479	4822 051 20008	0R Jumper 0805
4480	4822 051 20008	0R Jumper 0805
4481	4822 051 20008	0R Jumper 0805
4482	4822 051 20008	0R Jumper 0805
4483	4822 051 20008	0R Jumper 0805
4484	4822 051 20008	0R Jumper 0805
4485	4822 051 20008	0R Jumper 0805
4486	4822 051 20008	0R Jumper 0805
4487	4822 051 20008	0R Jumper 0805
4488	4822 051 20008	0R Jumper 0805
4489	4822 051 20008	0R Jumper 0805
4490	4822 051 20008	0R Jumper 0805
4491	4822 051 20008	0R Jumper 0805
4492	4822 051 20008	0R Jumper 0805
4493	4822 051 20008	0R Jumper 0805
4494	4822 051 20008	0R Jumper 0805
4495	4822 051 20008	0R Jumper 0805
4496	4822 051 20008	0R Jumper 0805
4497	4822 051 20008	0R Jumper 0805
4498	4822 051 20008	0R Jumper 0805
4499	4822 051 20008	0R Jumper 0805
4500	4822 051 20008	0R Jumper 0805
4501	4822 051 20008	0R Jumper 0805
4502	4822 051 20008	0R Jumper 0805
4503	4822 051 20008	0R Jumper 0805
4504	4822 051 20008	0R Jumper 0805
4505	4822 051 20008	0R Jumper 0805
4506	4822 051 20008	0R Jumper 0805
4507	4822 051 20008	0R Jumper 0805
4508	4822 051 20008	0R Jumper 0805
4509	4822 051 20008	0R Jumper 0805
4510	4822 051 20008	0R Jumper 0805
4511	4822 051 20008	0R Jumper 0805
4512	4822 051 20008	0R Jumper 0805
4513	4822 051 20008	0R Jumper 0805
4514	4822 051 20008	0R Jumper 0805
4515	4822 051 20008	0R Jumper 0805
4516	4822 051 20008	0R Jumper 0805
4517	4822 051 20008	0R Jumper 0805
4518	4822 051 20008	0R Jumper 0805
4519	4822 051 20008	0R Jumper 0805
4520	4822 051 20008	0R Jumper 0805

ELECTRICAL PARTS LIST - FRONT BOARD

RESISTORS

4521	4822 051 20008	0R Jumper 0805
4522	4822 051 20008	0R Jumper 0805
4523	4822 051 20008	0R Jumper 0805
4524	4822 051 20008	0R Jumper 0805
4525	4822 051 20008	0R Jumper 0805
4526	4822 051 20008	0R Jumper 0805
4527	4822 051 20008	0R Jumper 0805
4528	4822 051 20008	0R Jumper 0805
4529	4822 051 20008	0R Jumper 0805
4530	4822 051 20008	0R Jumper 0805
4531	4822 051 20008	0R Jumper 0805
4532	4822 051 20008	0R Jumper 0805
4533	4822 051 20008	0R Jumper 0805
4534	4822 051 20008	0R Jumper 0805
4535	4822 051 20008	0R Jumper 0805
4536	4822 051 20008	0R Jumper 0805
4537	4822 051 20008	0R Jumper 0805
4538	4822 051 20008	0R Jumper 0805
4539	4822 051 20008	0R Jumper 0805
4540	4822 051 20008	0R Jumper 0805
4541	4822 051 20008	0R Jumper 0805
4542	4822 051 20008	0R Jumper 0805
4543	4822 051 20008	0R Jumper 0805
4544	4822 051 20008	0R Jumper 0805
4545	4822 051 20008	0R Jumper 0805
4546	4822 051 20008	0R Jumper 0805
4547	4822 051 20008	0R Jumper 0805
4588	4822 051 20008	0R Jumper 0805
4589	4822 051 20008	0R Jumper 0805

COILS & FILTERS

5400	4822 242 72066	Ceram Resonator 8MHz
5401	2422 543 01069	Crystal 32,768kHz
5402	4822 157 62552	Coil 2,2µH 5%
5404	4822 157 62552	Coil 2,2µH 5%
5405	4822 157 62552	Coil 2,2µH 5%

DIODES

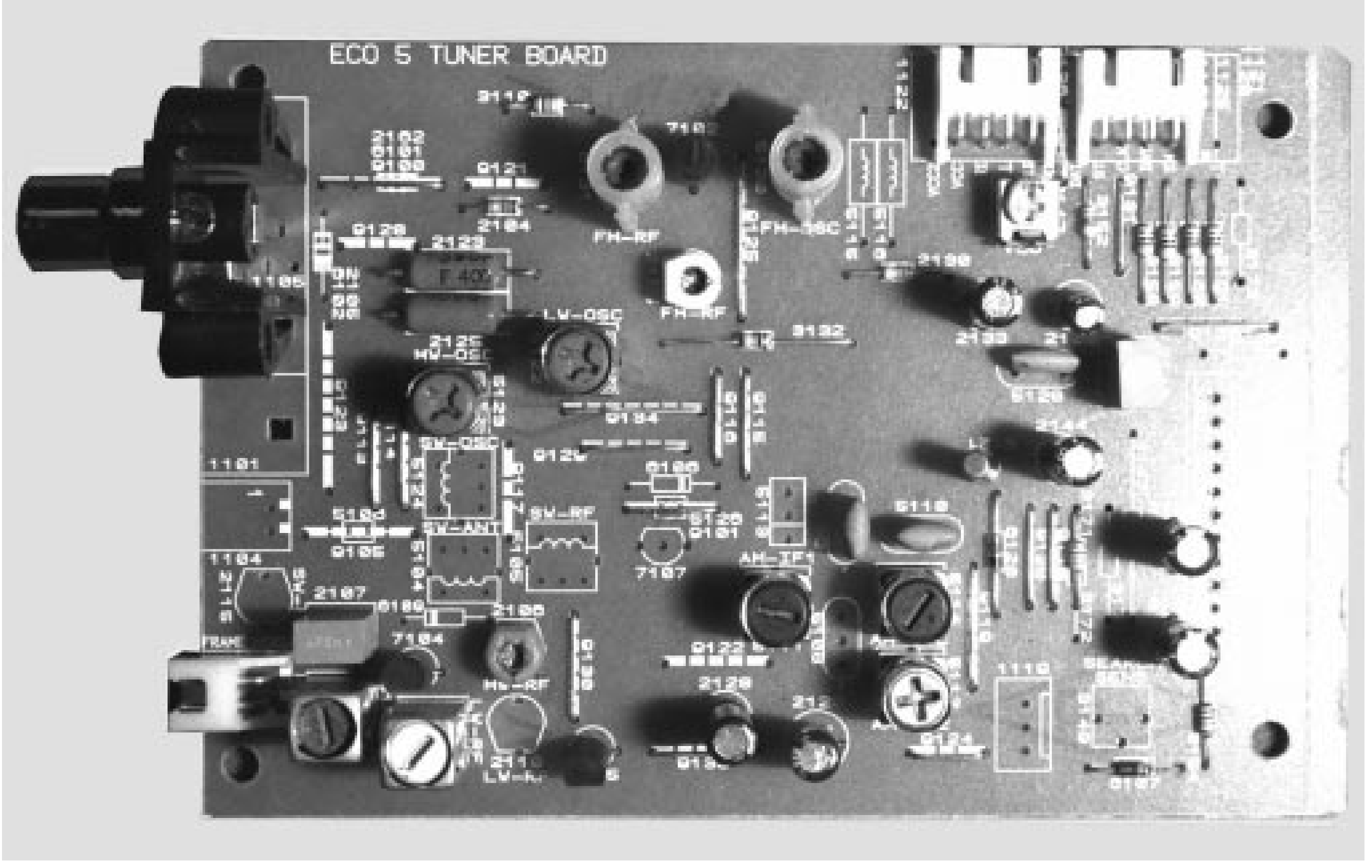
6412	4822 130 30621	1N4148
6413	4822 130 30621	1N4148
6414	4822 130 30621	1N4148
6415	4822 130 30621	1N4148
6416	4822 130 30621	1N4148
6417	4822 130 30621	1N4148
6418	4822 130 30621	1N4148
6419	4822 130 30621	1N4148
6421	4822 130 30621	1N4148
6422	4822 130 30621	1N4148
6425	4822 130 31878	1N4003G
6426	4822 130 31878	1N4003G

TRANSISTORS & INTEGRATED CIRCUITS

7401	3139 110 52500	TMP87CP71F “C100S52501”
7402	9965 000 04931	M24C01-WMN6
7404	5322 209 11306	HEF4094BT
7408	5322 130 60159	BC847B
7409	4822 130 10165	GP1U28XP
7410	5322 130 60159	BC847B
7411	5322 130 60159	BC847B
7412	5322 130 60159	BC847B
7413	5322 130 60159	BC847B

Note: Only the parts mentioned in this list are normal service spare parts.

BLOCKDIAGRAM


ECO 5 TUNER BOARD
FM-RF
FM-OSC
LW-OSC
MW-OSC
SW-OSC
SW-ANT
SW-RF
AM-IF1
MW-RF
LW-RF
FRAME
1101
1104
1105
1110
1122
7104
7107
2102
2104
2107
2108
2123
2125
2128
2130
2132

TUNER BOARD ECO5

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Blockdiagram 7B-1
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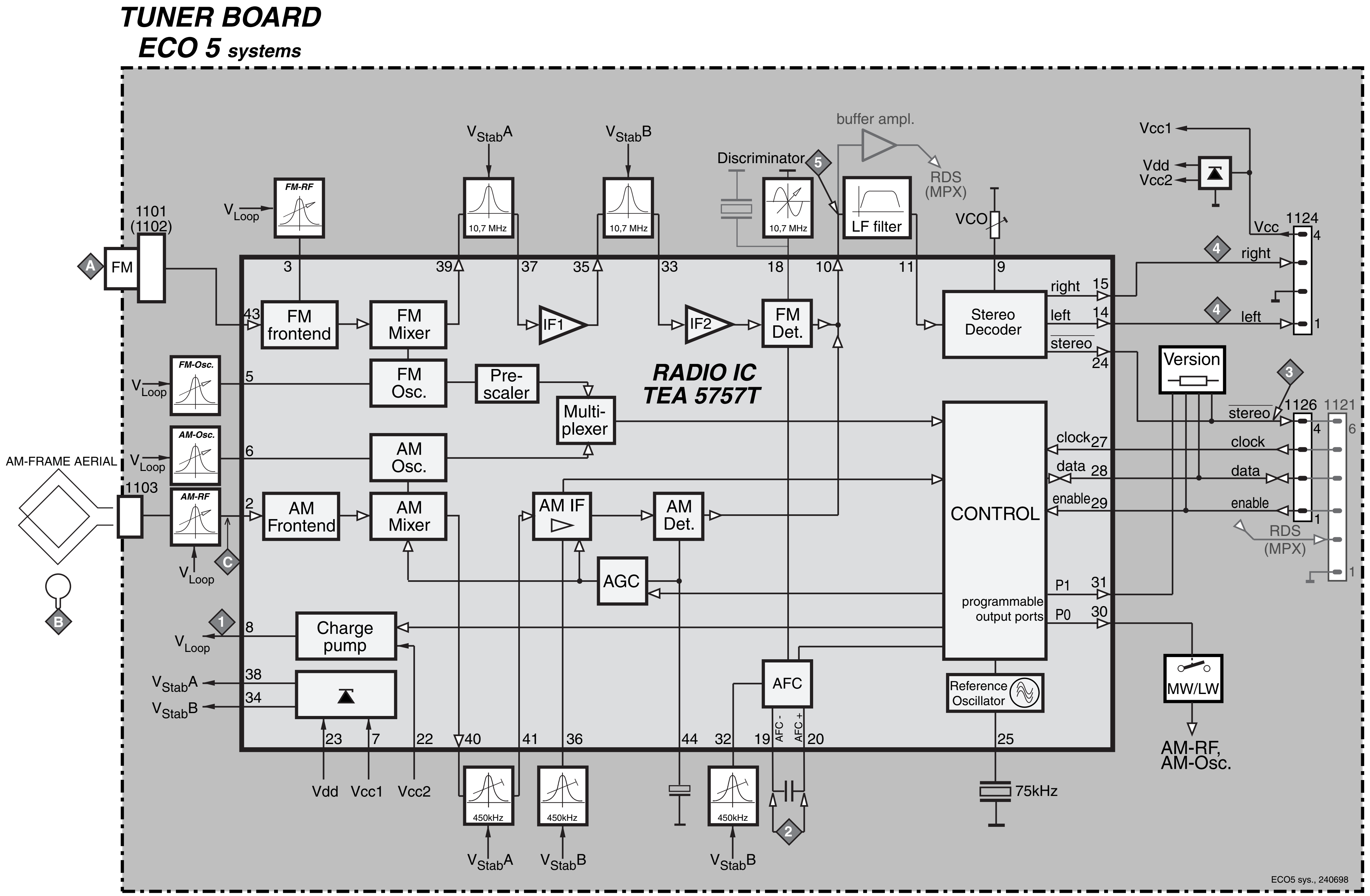
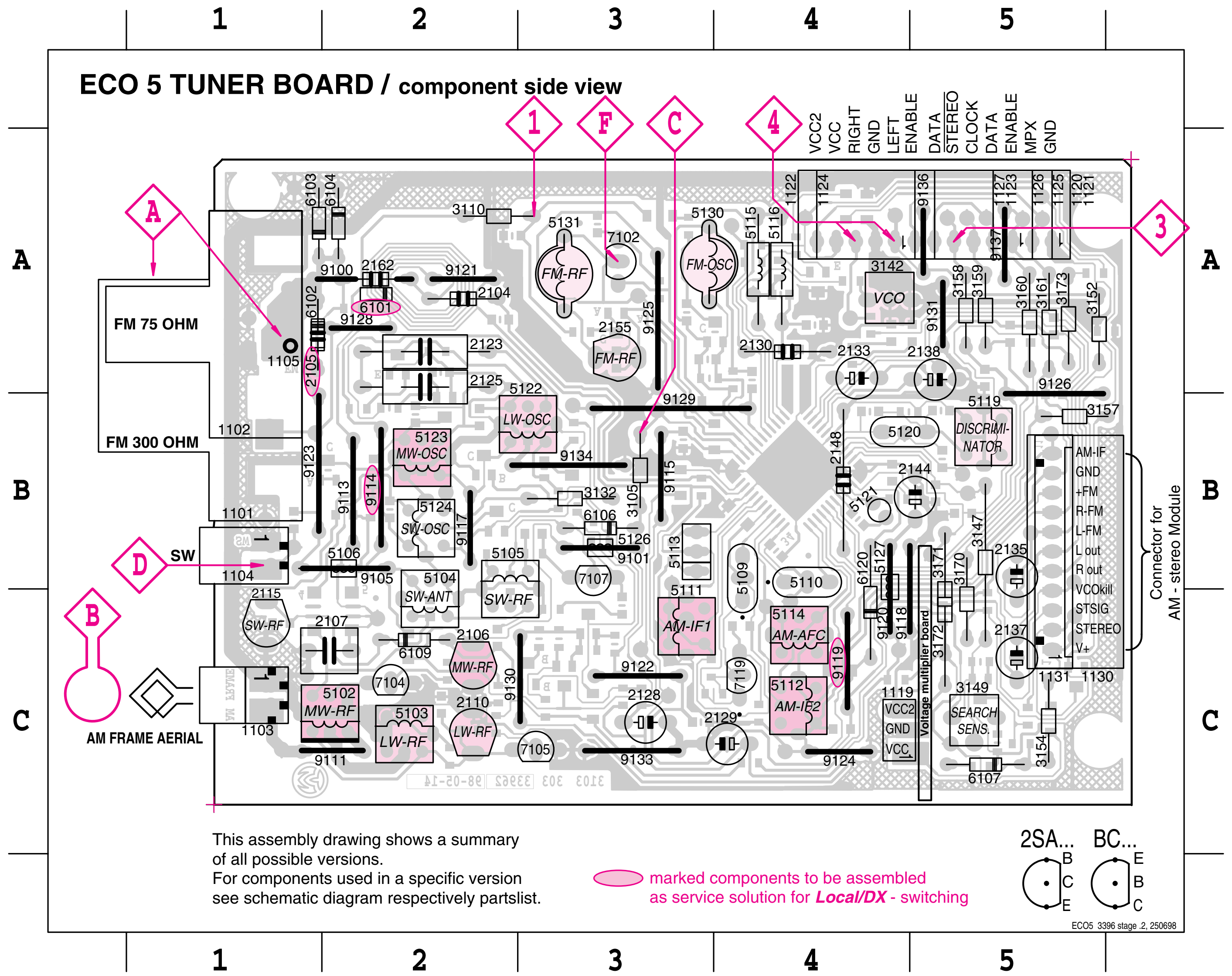
Partslist 7B-4


TUNER BOARD
ECO 5 systems
RADIO IC
TEA 5757T
FM
1101
(1102)
AM-FRAME AERIAL
1103
FM-RF
FM-Osc.
AM-Osc.
AM-RF
V Loop
FM frontend
FM Mixer
FM Osc.
Pre-scaler
Multi-plexer
AM Osc.
AM Frontend
AM Mixer
AM IF
AM Det.
AGC
IF1
IF2
FM Det.
Discriminator
buffer ampl.
RDS (MPX)
LF filter
VCO
Stereo Decoder
CONTROL
programmable output ports
Reference Oscillator
Charge pump
AFC
AFC -
AFC +
Version
MW/LW
AM-RF, AM-Osc.
V Stab A
V Stab B
10,7 MHz
450kHz
75kHz
Vdd
Vcc1
Vcc2
Vcc
right
left
stereo
clock
data
enable
P1
P0
1124
1126
1121
A
B
C
1
2
3
4
5
3
39
37
35
33
18
10
11
9
15
14
24
27
28
29
31
30
43
5
6
2
8
38
34
23
7
22
40
41
36
44
32
19
20
25
ECO5 sys., 240698

1101 A1	2106 C2	2137 C5	3149 C5	3173 A5	5114 C4	5130 A3	7104 C2	9117 B2	9129 B3		
1102 A1	2107 C2	2138 A5	3152 A5	5102 C2	5115 A4	5131 A3	7105 C3	9118 B4	9130 C3		
1103 C1	2110 C2	2144 B5	3154 C5	5103 C2	5116 A4	6101 A2	7107 B3	9119 C4	9131 A5		
1104 B1	2115 C1	2148 B4	3157 B5	5104 C2	5119 B5	6102 A1	7119 C4	9120 B4	9133 C3		
1105 A1	2123 A2	2155 A3	3158 A5	5105 B2	5120 B4	6103 A1	9100 A2	9121 A2	9134 B3		
1119 C5	2125 A2	2162 A2	3159 A5	5106 B2	5121 B4	6104 A2	9101 B3	9122 C3	9136 A5		
1120 A5	2128 C3	3105 B3	3160 A5	5109 B4	5122 B3	6106 B3	9105 B2	9123 B1	9137 A5		
1130 B5	2129 C4	3110 A2	3161 A5	5110 B4	5123 B2	6107 C5	9111 C2	9124 C4			
1131 B5	2130 A4	3132 B3	3170 C5	5111 C3	5124 B2	6109 C2	9113 B2	9125 A3			
2104 A2	2133 A4	3142 A4	3171 C5	5112 C4	5126 B3	6120 C4	9114 B2	9126 B5			
2105 A1	2135 B5	3147 B5	3172 C5	5113 B3	5127 B4	7102 A3	9115 B3	9128 A2			


1
2
3
4
5
A
B
C
1
F
C
4
3
A
D
B
VCC2
VCC
RIGHT
GND
LEFT
ENABLE
DATA
STEREO
CLOCK
DATA
ENABLE
MPX
GND
FM 75 OHM
FM 300 OHM
SW
AM FRAME AERIAL
FM-RF
FM-OSC
VCO
FM-RF
LW-OSC
MW-OSC
SW-OSC
SW-ANT
SW-RF
SW-RF
MW-RF
MW-RF
LW-RF
LW-RF
AM-IF1
AM-AFC
AM-IF2
DISCRIMI-NATOR
SEARCH SENS.
Voltage multiplier board
VCC2
GND
VCC
AM-IF
GND
+FM
R-FM
L-FM
L out
R out
VCOkill
STSIG
STEREO
V+
Connector for AM - stereo Module
7101
1101
1102
1103
1104
1105
1119
1130
1131
2SA...
B
C
E
BC...
E
B
C

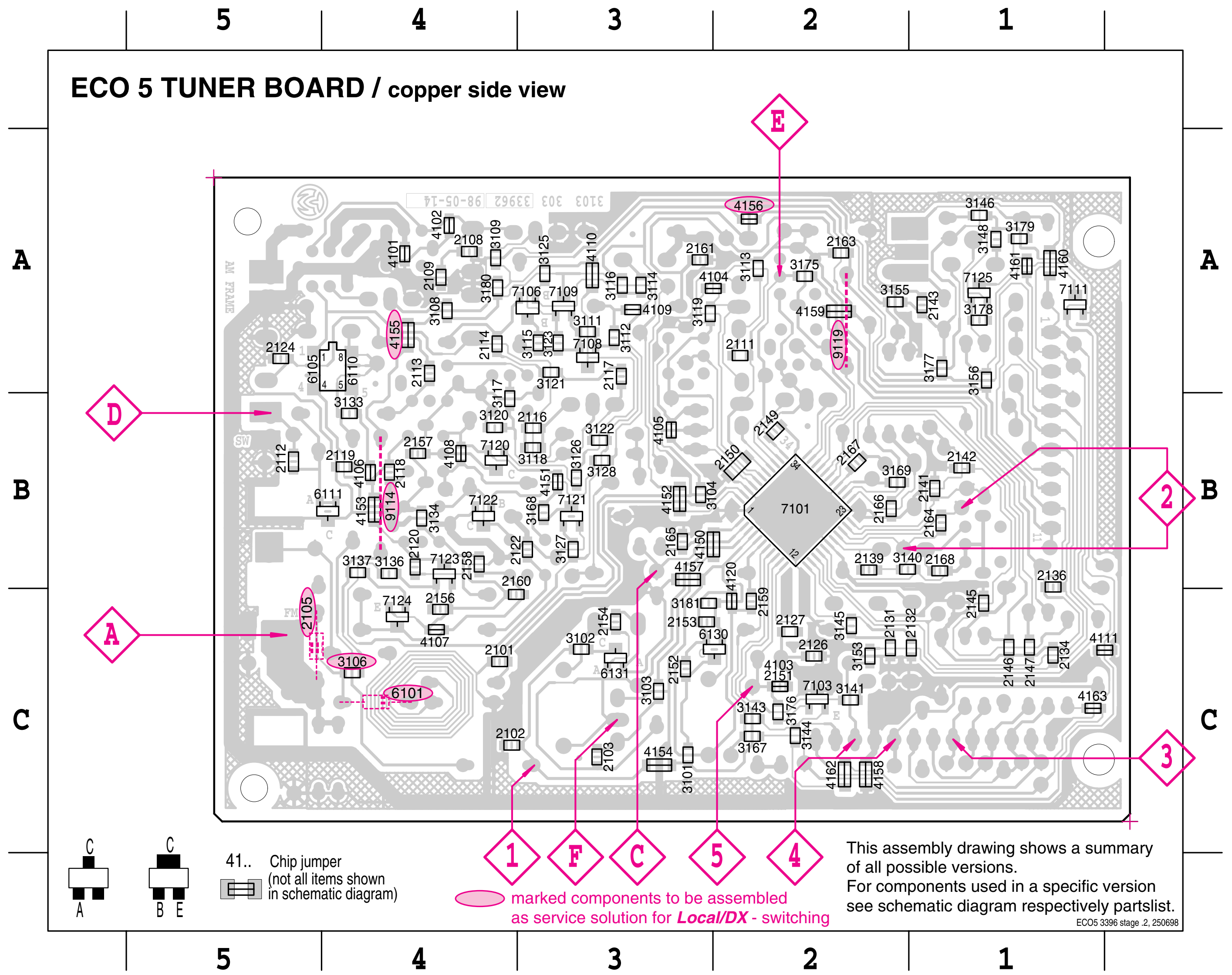
ECO 5 TUNER BOARD / component side view

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

marked components to be assembled as service solution for ***Local/DX*** - switching

ECO5 3396 stage .2, 250698

2101 C4	2118 B4	2139 B2	2153 C3	2166 B2	3112 A3	3123 A3	3143 C2	3175 A2	4105 B3	4153 B4	6105 A4	7120 B4
2102 C4	2119 B4	2141 B1	2154 C3	2167 B2	3113 A2	3125 A3	3144 C2	3176 C2	4106 B4	4154 C3	6110 A4	7121 B3
2103 C3	2120 B4	2142 B1	2156 C4	2168 B1	3114 A3	3126 B3	3145 C2	3177 A1	4107 C4	4155 A4	6111 B4	7122 B4
2108 A4	2122 B3	2143 A1	2157 B4	3101 C3	3115 A3	3127 B3	3146 A1	3178 A1	4108 B4	4156 A2	6130 C2	7123 B4
2109 A4	2124 A5	2145 C1	2158 B4	3102 C3	3116 A3	3128 B3	3148 A1	3179 A1	4109 A3	4157 B3	6131 C3	7124 C4
2111 A2	2126 C2	2146 C1	2159 C2	3103 C3	3117 B4	3133 B4	3153 C2	3180 A4	4110 A3	4158 C2	7101 B2	7125 A1
2112 B5	2127 C2	2147 C1	2160 C4	3104 B3	3118 B3	3134 B4	3155 A2	3181 C3	4111 C1	4159 A2	7103 C2	
2113 A4	2131 C2	2149 B2	2161 A3	3106 C4	3119 A3	3136 B4	3156 A1	4101 A4	4120 C2	4160 A1	7106 A3	
2114 A4	2132 C1	2150 B2	2163 A2	3108 A4	3120 B4	3137 B4	3167 C2	4102 A4	4150 B2	4161 A1	7108 A3	
2116 B3	2134 C1	2151 C2	2164 B1	3109 A4	3121 A3	3140 B2	3168 B3	4103 C2	4151 B3	4162 C1	7109 A3	
2117 A3	2136 B1	2152 C3	2165 B3	3111 A3	3122 B3	3141 C2	3169 B2	4104 A2	4152 B3	4163 C1	7111 A1	


5
4
3
2
1
A
B
C
E
D
A
2
3
1
F
C
5
4
7101
C
A
C
B E

ECO 5 TUNER BOARD / copper side view

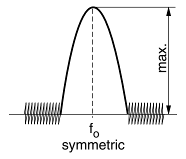
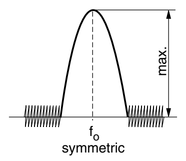
41.. Chip jumper (not all items shown in schematic diagram)

marked components to be assembled as service solution for ***Local/DX*** - switching

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

ECO5 3396 stage .2, 250698

TUNER ADJUSTMENT TABLE (**ECO5** FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130	1	8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123		6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM IF						
FM	10.7MHz, 50mV continuous wave	F	IC 7101 21 shortcircuit to block AFC 2141	5119	2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A	108MHz	2155	4	MAX ↕
	87.5MHz (65.81MHz)	mod=1kHz Δf=±22.5kHz	87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz 1)
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with short wire to ground (pin 4)	C Δf=±15kHz V_{RF} = 3mV	IC 7101 36 100nF 220R	5111	4	 max. f_o symmetric
			IC 7101 40 100nF 220R see remark 2)	5112		
AM AFC **MW**		C continuous wave V_{RF} = 10mV		5114	2	0 ± 2 mV DC
AM RF 3)						
MW 4) FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	B Δf = ±30kHz V_{RF} as low as possible	1494kHz	2106	4	 max. f_o symmetric ↕
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz		1500kHz	2106		↕
	560kHz		560kHz	5102		

ECO5, discr. coil, 090797

Use service test program. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

1) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

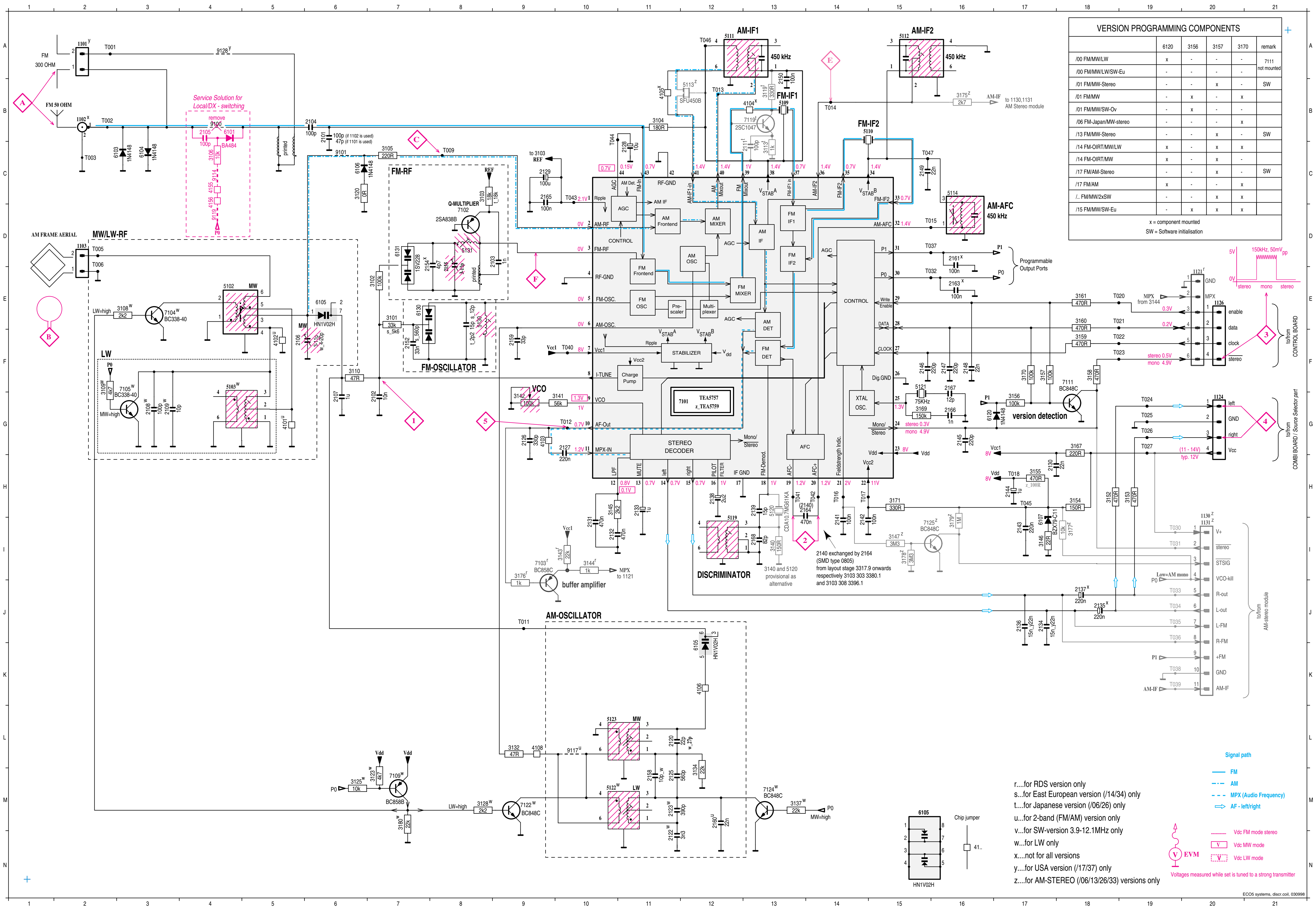
2) RC network serves for damping the IF-filter while adjusting the other one.

3) For AM RF adjustments the original frame antenna has to be used !

4) MW has to be aligned before LW.

↕ Repeat

TUNER BOARD ECO5 / Systems


FM 300 OHM
FM 50 OHM
AM FRAME AERIAL
MW/LW-RF
LW
Service Solution for Local/DX - switching
remove 9100
FM-RF
Q-MULTIPLIER 7102 2SA838B
FM-OSCILLATOR
VCO
AM-IF1 5111 450 kHz
AM-IF2 5112 450 kHz
FM-IF1 5109
FM-IF2 5110
AM-AFC 5114 450 kHz
TEA5757 z_TEA5759
AGC
AM Frontend
AM MIXER
AM IF
AM OSC
FM Frontend
FM OSC
Pre-scaler
Multi-plexer
FM MIXER
FM IF1
FM IF2
AM DET
FM DET
CONTROL
STABILIZER
Charge Pump
XTAL OSC.
STEREO DECODER
AFC
Programmable Output Ports
to/from CONTROL BOARD
to/from COMBI BOARD / Source Selector part
to/from AM-stereo module
to 1130,1131 AM Stereo module
150kHz, 50mVpp
5V
0V
stereo mono stereo
version detection
DISCRIMINATOR
5119
2140 exchanged by 2164 (SMD type 0805) from layout stage 3317.9 onwards respectively 3103 303 3380.1 and 3103 308 3396.1
3140 and 5120 provisional as alternative
buffer amplifier
AM-OSCILLATOR
5123 MW
5122 LW
LW=high
MW=high
6105 HN1V02H
Chip jumper 41..
ECO5 systems, discr.coil, 030998

	6120	3156	3157	3170	remark
/00 FM/MW/LW	x	-	-	-	7111 not mounted
/00 FM/MW/LW/SW-Eu	-	-	-	-	
/01 FM/MW-Stereo	-	-	x	-	SW
/01 FM/MW	-	x	-	x	
/01 FM/MW/SW-Ov	-	x	-	-	
/06 FM-Japan/MW-stereo	-	-	-	x	
/13 FM/MW-Stereo	-	-	x	-	SW
/14 FM-OIRT/MW/LW	x	-	x	x	
/14 FM-OIRT/MW	x	-	x	-	
/17 FM/AM-Stereo	-	-	x	-	SW
/17 FM/AM	x	-	-	x	
/.. FM/MW/2xSW	-	-	x	x	
/15 FM/MW/SW-Eu	-	x	x	x	

VERSION PROGRAMMING COMPONENTS

x = component mounted
SW = Software initialisation

r....for RDS version only
s...for East European version (/14/34) only
t....for Japanese version (/06/26) only
u...for 2-band (FM/AM) version only
v...for SW-version 3.9-12.1MHz only
w...for LW only
x....not for all versions
y....for USA version (/17/37) only
z....for AM-STEREO (/06/13/26/33) versions only

Signal path
— FM
-·- AM
- - - MPX (Audio Frequency)
⇨ AF - left/right

EVM
.... Vdc FM mode stereo
V Vdc MW mode
V Vdc LW mode
Voltages measured while set is tuned to a strong transmitter

1101	A 1
1102	B 2
1103	D 2
1121	E20
1124	G20
1126	E20
1130	I20
1131	I20
2101	C 6
2102	G 7
2103	D 9
2104	B 6
2106	F 5
2107	G 6
2108	G 3
2109	G 3
2111	C13
2120	L11
2122	N11
2123	M11
2125	M11
2126	G 9
2127	G10
2128	C11
2129	C 9
2130	H17
2131	I10
2132	I10
2133	H11
2134	J17
2135	J18
2136	J17
2137	J18
2138	H12
2139	H13
2140	H14
2141	H14
2142	H14
2143	I17
2144	H17
2145	G16
2146	F15
2147	F16
2148	F16
2149	C15
2150	B13
2152	F 7
2153	E 8
2154	E 7
2155	D 8
2158	M11
2159	F 9
2160	M12
2161	D16
2163	E16
2164	H14
2165	C 9
2166	G16
2167	F16
2168	I 13
3101	E 7
3102	E 7
3103	C 8
3104	B11
3105	C 7
3108	E 3
3109	F 2
3110	F 6
3113	C13
3119	B13
3120	C 6
3123	M 7
3125	M 6
3128	M 8
3132	L 9
3134	M12
3137	M13
3140	I13
3141	G10
3142	G 9
3143	I10
3144	I10
3145	H10
3146	I17
3147	I15
3152	H18
3153	H19
3154	H18
3155	H17
3156	G17
3157	F17
3158	F18
3159	F18
3160	E18
3161	E18
3167	G18
3169	G15
3170	F17
3171	H15
3175	B16
3176	J 9
3177	I18
3178	I15
3179	I16
3180	M7
4101	G 5
4102	F 5
4103	G 9
4104	B13
4105	B11
4106	K12
4108	L 9
5102	E 4
5103	F 4
5109	B13
5110	B14
5111	A13
5112	A15
5113	B12
5114	C16
5119	I 12
5120	H13
5121	F15
5122	M11
5123	L11
5130	E 8
5131	D 8
6103	C 2
6104	C 3
6105	K12
6105	E 6
6106	C 6
6107	H17
6120	G16
6130	E 7
6131	D 7
7101	G11
7102	D 8
7103	I 9
7104	E 3
7105	F 2
7109	M 7
7111	F18
7119	B13
7122	M 9
7124	M13
7125	I16
9100	B 4
9101	C 6
9117	L10
9128	A 4

MISCELLANEOUS

1101	4822 267 31505	Antenna Socket 300R	
1102	4822 267 10283	Antenna Socket Coax IEC 75R	

CAPACITORS

2101	5322 122 32531	100pF 5% 50V	
2101	4822 126 13692	47pF 1% 63V	for USA
2102	4822 122 33177	10nF 20% 50V	
2103	5322 122 34123	1nF 10% 50V	
2104	4822 122 33195	100pF 10% 50V	
2106	4822 125 50355	Trimmer 4-20pF	for LW version
2106	4822 125 60101	Trimmer 3-11pF 100V	
2107	4822 121 51319	1µF 10% 63V	
2108	5322 122 32531	100pF 5% 50V	for LW version
2109	5322 122 32448	10pF 5% 50V	for LW version
2120	4822 126 13691	27pF 1% 63V	for LW version
2120	5322 122 32658	22pF 5% 50V	
2122	4822 122 33891	3,3nF 10% 63V	for LW version
2125	4822 121 51381	560pF 5% 400V	
2126	5322 122 31863	330pF 5% 50V	
2127	4822 126 13473	220nF +80/-20% 50V	
2128	4822 124 41579	10µF 20% 50V	
2129	4822 124 41584	100µF 20% 10V	
2130	4822 126 11585	22nF+80/- 20% 25V	
2131	4822 122 33325	470nF 16V	
2132	4822 122 33325	470nF 16V	
2131	4822 126 13482	470nF +80/- 20% 16V	
2132	4822 126 13482	470nF +80/- 20% 16V	
2133	4822 124 40242	1µF 20% 63V	
2134	4822 126 13188	15nF 5% 63V	
2134	5322 122 32654	22nF 10% 63V	for USA
2135	4822 124 40746	0,22µF 20% 63V	
2136	4822 126 13188	15nF 5% 63V	
2136	5322 122 32654	22nF 10% 63V	for USA
2137	4822 124 40746	0,22µF 20% 63V	
2138	4822 124 41576	2,2µF 20% 50V	
2139	4822 126 14236	50V 15pF 5%	
2140	4822 121 51252	470nF 5% 63V	
2141	4822 126 10002	100nF 20% 25V	
2142	4822 126 10002	100nF 20% 25V	
2143	4822 126 13473	220nF +80/-20% 50V	
2144	4822 124 40242	1µF 20% 63V	
2145	4822 122 33575	220pF 5% 50V	
2146	4822 122 33575	220pF 5% 50V	
2147	4822 122 33575	220pF 5% 50V	
2148	4822 126 11585	22nF+80/- 20% 25V	
2149	5322 122 32654	22nF 10% 63V	
2150	4822 122 31947	100nF 20% 63V	
2152	5322 116 80853	560pF 5% 63V	for East. Europe
2152	4822 126 12105	33nF 5% 63V	
2153	4822 122 32139	12pF 2% 63V	for East. Europe
2153	4822 122 32504	15pF 2% 63V	
2155	4822 125 60101	Trimmer 3-11pF 100V	
2158	5322 122 32448	10pF 5% 50V	for LW version
2159	5322 122 32659	33pF 5% 50V	
2160	5322 122 32654	22nF 10% 63V	
2161	4822 126 10002	100nF 20% 25V	
2163	4822 126 10002	100nF 20% 25V	
2164	4822 126 13482	470nF +80/- 20% 16V	
2165	4822 126 10002	100nF 20% 25V	
2166	5322 122 34123	1nF 10% 50V	
2167	4822 122 32139	12pF 2% 63V	
2168	4822 126 13695	82pF 1% 63V	

RESISTORS

3101	4822 051 20562	5k6 5% 0,1W	for East. Europe
3101	4822 051 20333	33k 5% 0,1W	
3102	4822 051 20104	100k 5% 0,1W	
3103	4822 117 10965	18k 1% 0,1W	
3104	4822 117 11448	180R 1% 0,1W	
3105	4822 116 83872	220R 5% 0,5W	
3108	4822 117 11449	2k2 1% 0,1W	for LW version
3109	4822 051 20472	4k7 5% 0,1W	for LW version
3110	4822 116 52195	47R 5% 0,5W	
3120	4822 051 20008	0R Jumper 0805	
3123	4822 051 20472	4k7 5% 0,1W	for LW version
3125	4822 117 10833	10k 1% 0,1W	for LW version
3128	4822 117 11449	2k2 1% 0,1W	for LW version
3132	4822 116 52195	47R 5% 0,5W	
3134	4822 051 20223	22k 5% 0,1W	
3137	4822 051 20223	22k 5% 0,1W	for LW version
3140	4822 051 20008	0R Jumper 0805 5120=CDA10.7MG40K	
3140	4822 117 10353	150R 1% 0,1W 5120=CDA10.7MG61KA	
3141	4822 051 20563	56k 5% 0,1W	
3142	4822 100 11163	Trimmer 100k 30% 0,1W	
3143	4822 051 20223	22k 5% 0,1W	for RDS version
3144	4822 051 10102	1k 2% 0,25W	for RDS version
3145	4822 117 11449	2k2 1% 0,1W	
3146	4822 051 20229	22R 5% 0,1W	
3152	4822 116 83883	470R 5% 0,5W	
3153	4822 051 20471	470R 5% 0,1W	
3154	4822 116 83868	150R 5% 0,5W	
3155	4822 051 20471	470R 5% 0,1W	
3156	4822 051 20104	100k 5% 0,1W	for /21/30/33 only
3157	4822 116 52234	100k 5% 0,5W	for East. Europe
3158	4822 116 83883	470R 5% 0,5W	
3159	4822 116 83883	470R 5% 0,5W	
3160	4822 116 83883	470R 5% 0,5W	
3161	4822 116 83883	470R 5% 0,5W	
3167	4822 117 11503	220R 1% 0.1W	
3169	4822 051 20154	150k 5% 0,1W	
3170	4822 116 52234	100k 5% 0,5W	
3171	4822 116 52219	330R 5% 0,5W	

3176	4822 051 10102	1k 2% 0,25W	for RDS version
3180	4822 051 20223	22k 5% 0,1W	for LW version
4101	4822 051 20008	0R Jumper 0805	for 2-Band only
4102	4822 051 20008	0R Jumper 0805	for 2-Band only
4103	4822 051 20008	0R Jumper 0805	
4104	4822 051 20008	0R Jumper 0805	
4105	4822 051 20008	0R Jumper 0805	
4106	4822 051 20008	0R Jumper 0805	
4108	4822 051 20008	0R Jumper 0805	
4111	4822 051 20008	0R Jumper 0805	
4120	4822 051 20008	0R Jumper 0805	
4150	4822 051 10008	0R Jumper 1206	
4151	4822 051 20008	0R Jumper 0805	
4152	4822 051 10008	0R Jumper 1206	
4153	4822 051 10008	0R Jumper 1206	
4154	4822 051 10008	0R Jumper 1206	
4155	4822 051 10008	0R Jumper 1206	
4156	4822 051 20008	0R Jumper 0805	
4157	4822 051 10008	0R Jumper 1206	
4158	4822 051 10008	0R Jumper 1206	
4159	4822 051 10008	0R Jumper 1206	
4162	4822 051 10008	0R Jumper 1206	

COILS & FILTERS

5102	4822 157 71634	MW RF Coil	
5103	4822 157 71635	LW RF Coil	for LW version
5109	4822 242 70665	Ceram Filter 10,7MHz	
5110	4822 242 70665	Ceram Filter 10,7MHz	
5111	4822 158 60511	AM-IF Filter 450kHz	
5112	4822 157 70302	AM-IF Filter 450kHz	
5114	4822 157 70302	AM-IF Filter 450kHz	
5119	4822 157 11443	Discriminator 10,7MHz	
5120	4822 242 82065	Cer. Disc. 10,7MG40K	
5120	4822 242 10251	Cer. Disc.10,7MG61KA-TF21	
5121	4822 242 10261	Quartz 75kHz	
5122	4822 157 60517	Osc. Coil LW	for LW version
5123	4822 157 60517	Osc. Coil MW	
5130	4822 156 30947	RF-Coil 1.5T	
5131	4822 156 30947	RF-Coil 1.5T	

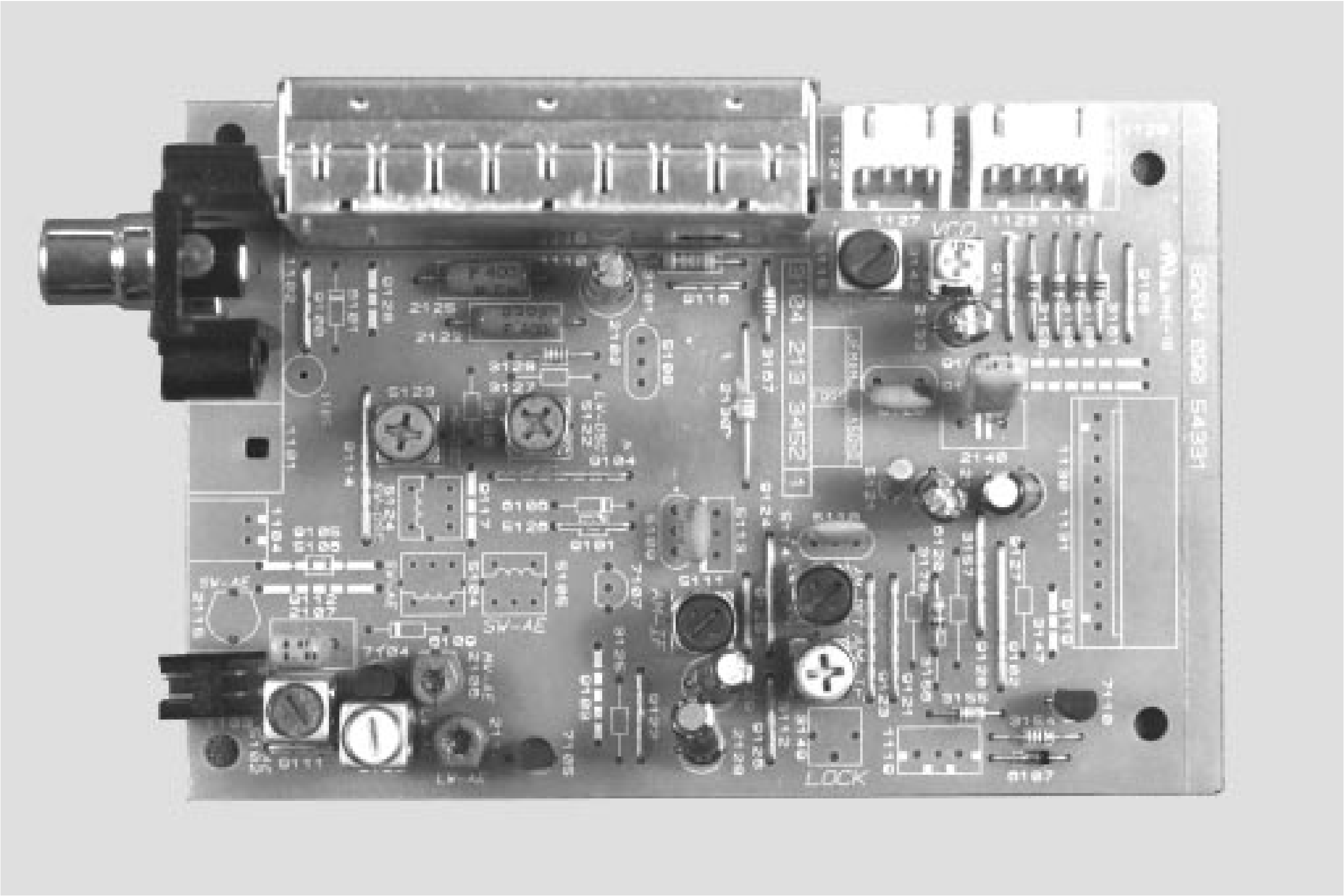
DIODES

6103	4822 130 30621	1N4148	
6104	4822 130 30621	1N4148	
6105	4822 130 83075	HN1V02H-B	
6106	4822 130 30621	1N4148	
6107	4822 130 34488	BZX79-B11	
6120	4822 130 30621	1N4148	not for /21/30/33
6130	4822 130 82833	1SV228	
6131	4822 130 82833	1SV228	

TRANSISTORS & INTEGRATED CIRCUITS

7101	4822 209 90924	TEA5757H/V1	
7102	4822 130 60093	2SA838B	
7103	4822 130 42513	BC858C	for RDS version
7104	5322 130 44779	BC338-40	for LW version
7105	5322 130 44779	BC338-40	for LW version
7109	5322 130 41983	BC858B	for LW version
7111	5322 130 42136	BC848C	
7122	5322 130 42136	BC848C	for LW version
7124	5322 130 42136	BC848C	for LW version

Note: Only the parts mentioned in this list are normal service spare parts.



TUNER 95 BOARD

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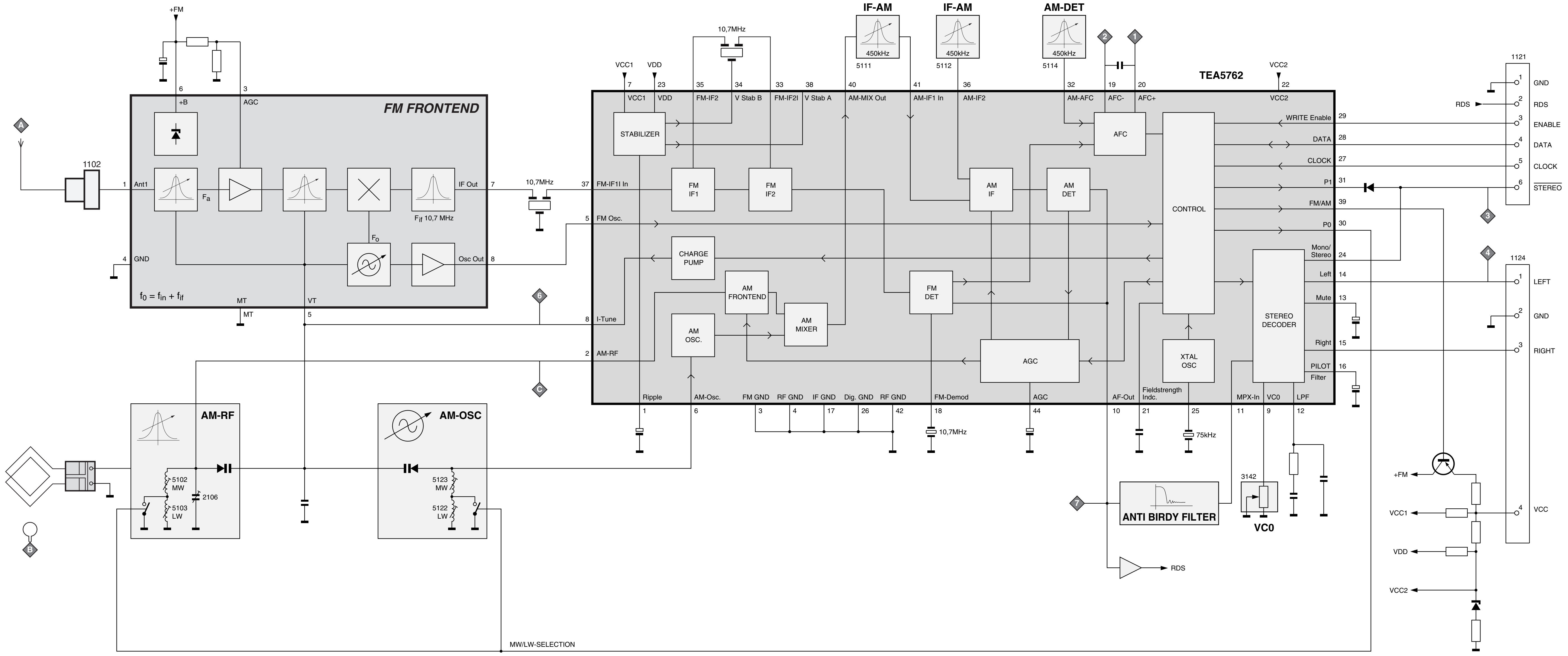
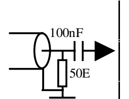
BLOCKDIAGRAM



+FM
6
3
+B
AGC
FM FRONTEND
A
1102
1
Ant1
F_a
F_{if} 10,7 MHz
IF Out
7
F_o
4
GND
Osc Out
8
$f_0 = f_{in} + f_{if}$
MT
VT
MT
5
10,7MHz
6
C
AM-RF
AM-OSC
5102
MW
5103
LW
2106
5123
MW
5122
LW
B
MW/LW-SELECTION
VCC1
VDD
10,7MHz
IF-AM
IF-AM
AM-DET
450kHz
450kHz
450kHz
5111
5112
5114
2
1
TEA5762
VCC2
7
23
35
34
33
38
40
41
36
32
19
20
22
VCC1
VDD
FM-IF2
V Stab B
FM-IF2I
V Stab A
AM-MIX Out
AM-IF1 In
AM-IF2
AM-AFC
AFC-
AFC+
VCC2
STABILIZER
AFC
37
FM-IF1I In
FM IF1
FM IF2
AM IF
AM DET
CONTROL
5
FM Osc.
CHARGE PUMP
AM FRONTEND
AM MIXER
FM DET
8
I-Tune
2
AM-RF
AM OSC.
AGC
XTAL OSC
STEREO DECODER
Ripple
AM-Osc.
FM GND
RF GND
IF GND
Dig. GND
RF GND
FM-Demod
AGC
AF-Out
Fieldstrength Indc.
MPX-In
VC0
LPF
1
6
3
4
17
26
42
18
44
10
21
25
11
9
12
10,7MHz
75kHz
WRITE Enable 29
DATA 28
CLOCK 27
P1 31
FM/AM 39
P0 30
Mono/ Stereo 24
Left 14
Mute 13
Right 15
PILOT Filter 16
7
ANTI BIRDY FILTER
3142
VC0
RDS
1121
1 GND
RDS
2 RDS
3 ENABLE
4 DATA
5 CLOCK
6 $\overline{\text{STEREO}}$
3
4
1124
1 LEFT
2 GND
3 RIGHT
+FM
VCC1
4 VCC
VDD
VCC2

TUNER 95 bis Adjustment Table (FM, MW, LW with Frame antenna)

Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT						
FM (50)			108 MHz	check	6	7 ... 9V
87.5 - 108 MHz			87.5 MHz	check		1.3 ... 2V
MW (9)			1602 kHz	5123		8.3V ± 0.2V
531 - 1602 kHz			531 kHz	check		1V ± 0.4V
LW (3)			279 kHz	5122		8.3V ± 0.2V
153 - 279 kHz			153 kHz	check		1V ± 0.4V
FM – DETECTION						
FM	98 MHz 1mV continuous wave ***short pin 21 (IC7101) to ground***	A	98 MHz	5107	1 2	0mV ± 3mV
FM – VCO						
FM	98 MHz 1 mV continuous wave	A	98 MHz	3142	3	152kHz ± 1 kHz
DISTORTION						
FM	98 MHz 1 mV 90 % L + 9 % pilot mod = 1kHz	A	98MHz	mixcoil inside Tuner 1110	4	Distortion minimum
AM – IF						
MW	450kHz Δf = 10kHz Low as possible Swept signal	 C	MW	5111	7	symmetrical and max. height ↕
				5112		
	450kHz continuous wave			5114	1 2	0mV ± 2mV
AM - RF						
MW	558kHz Mod = 1kHz 30 % AM 1494 kHz	B *	558kHz	5102	7	MAX ↕
			1494kHz	2106		
LW	198kHz mod = 1kHz 30 % AM		198kHz	5103		MAX

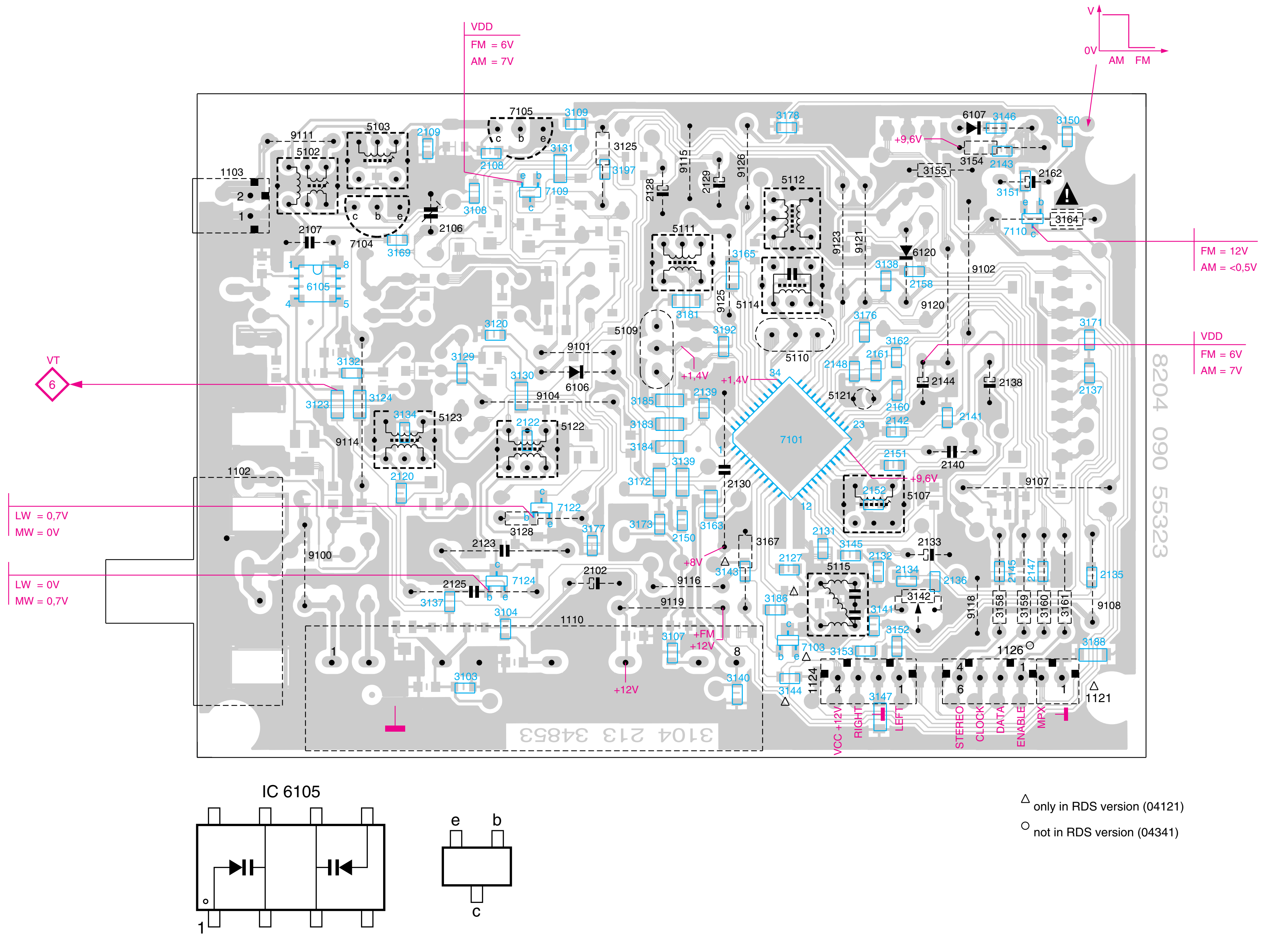
adjtable for 3104 217 04121/04341

* Signal send via a frame antenna
(..) = tuning grid in kHz

↕ repeat

1102	F4	2107	C4	2128	C7	2136	G10	2144	E10	2160	E9	3120	D6	3132	E5	3143	G8	3153	G9	3163	F8	3176	D9	3188	G11	5111	C8	6106	E7	7110	D11	9108	G11	9121	D9
1103	C4	2108	C6	2129	C8	2137	E11	2145	G11	2161	E9	3123	E4	3134	E5	3144	H9	3154	C10	3164	C11	3177	F7	3192	D8	5112	C9	6107	B10	7122	F7	9111	C4	9123	D9
1110	G7	2109	C5	2130	F8	2138	E10	2147	G11	2162	C11	3124	E5	3137	G5	3145	F9	3155	C10	3165	D8	3178	B8	3197	C7	5114	D8	6120	D10	7124	G6	9114	E5	9125	D8
1121	H11	2120	F5	2131	F9	2139	E8	2148	E9	3103	H6	3125	C7	3138	D9	3146	B10	3158	G11	3167	F8	3181	D8	5102	C4	5115	G9	7101	E9	9100	F4	9115	C8	9126	C8
1124	H9	2122	E6	2132	F9	2140	F10	2150	F8	3104	G6	3128	F6	3139	F8	3147	H9	3159	G11	3169	D5	3183	E7	5103	C5	5121	E9	7103	G9	9101	E7	9116	G8		
1126	G10	2123	F6	2133	F10	2141	E10	2151	F9	3107	G7	3129	E6	3140	H8	3150	C11	3160	G11	3171	D11	3184	E7	5107	F10	5122	E7	7104	D5	9102	D10	9118	G10		
2102	G7	2125	G6	2134	G10	2142	E9	2152	F9	3108	C6	3130	E6	3141	G9	3151	C10	3161	G11	3172	F7	3185	E7	5109	D7	5123	E5	7105	B6	9104	E6	9119	G7		
2106	C5	2127	F9	2135	G11	2143	C10	2158	D10	3109	B7	3131	C6	3142	G10	3152	G9	3162	D9	3173	F7	3186	G8	5110	E9	6105	D4	7109	C6	9107	F11	9120	D10		

TUNER 95 bis Combi: Copper side view



△ only in RDS version (04121)
○ not in RDS version (04341)

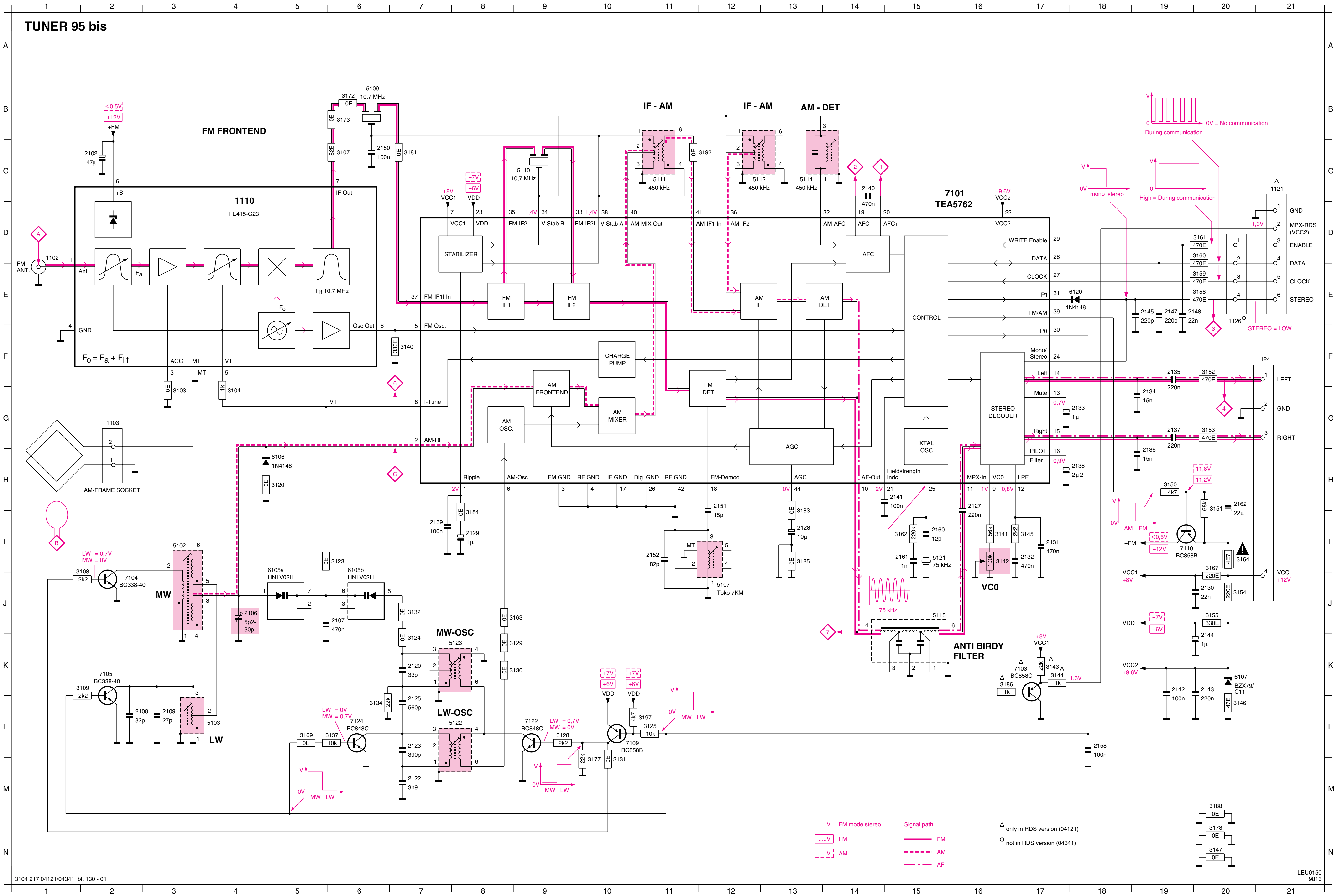
TUNER 95 bis
3104 217 04121/04341 bl. 110 - 01

LEU0149
9813

1102	D1	1124	F21	2107	J6	2122	M7	2128	I13	2132	I17	2136	H19	2140	C14	2144	K20	2150	C6	2160	I15	3104	G4	3120	H5	3128	L9	3132	J7
1103	G2	1126	E20	2108	L2	2123	L7	2129	I8	2133	G18	2137	G19	2141	H15	2145	E19	2151	H12	2161	I15	3107	C6	3123	I6	3129	K8	3134	L6
1110	D4	2102	C2	2109	L3	2125	L7	2130	J20	2134	G19	2138	H18	2142	K19	2147	E19	2152	I11	2162	H20	3108	J1	3124	K7	3130	K8	3137	L5
1121	C21	2106	J4	2120	K7	2127	H16	2131	I17	2135	F19	2139	I7	2143	K20	2148	E19	2158	L18	3103	G3	3109	K1	3125	L11	3131	M10	3140	F7

3141	I16	3145	I17	3151	I20	3155	J20	3161	D19	3167	I20	3177	M10	3184	I8	3192	C12	5107	J12	5112	C12	5122	L7	6106	H5	7103	K17	7110	I19
3142	I16	3146	L20	3152	F20	3158	E19	3162	I15	3169	L5	3178	N20	3185	I13	3197	L11	5109	B6	5114	C13	5123	K7	6107	K20	7104	J2	7122	L9
3143	K17	3147	N20	3153	G20	3159	E19	3163	J8	3172	B6	3181	C7	3186	K16	5102	I3	5110	C9	5115	J15	6105a	I5	6120	E17	7105	K2	7124	L6
3144	K17	3150	H19	3154	J20	3160	D19	3164	I20	3173	B6	3183	I13	3188	M20	5103	L4	5111	C11	5121	I15	6105b	I6	7101	C15	7109	L10		

TUNER 95 bis


FM FRONTEND
1110
FE415-G23
FM ANT.
1102
Ant1
Fa
Fif 10,7 MHz
Fo
IF Out
Osc Out
GND
AGC
MT
VT
Fo = Fa + Fif
+FM
<0,5V
+12V
2102 47µ
3172 0E
5109 10,7 MHz
3173 0E
3107 82E
2150 100n
3181 0E
3103 0E
3104 1k
3140 330E
6106 1N4148
3120 0E
1103
AM-FRAME SOCKET
MW
LW
5102
5103
7104 BC338-40
7105 BC338-40
3108 2k2
3109 2k2
2108 82p
2109 27p
2106 5p2-30p
6105a HN1V02H
6105b HN1V02H
2107 470n
3123 0E
3132 0E
3124 0E
MW-OSC
5123
LW-OSC
5122
2120 33p
2125 560p
2123 390p
2122 3n9
3134 22k
3169 0E
3137 10k
7124 BC848C
LW = 0V
MW = 0,7V
3163 0E
3129 0E
3130 0E
7122 BC848C
LW = 0,7V
MW = 0V
3128 2k2
3177 22k
3131 0E
7109 BC858B
3197 4k7
3125 10k
+7V
+6V
VDD
MW LW
IF - AM
IF - AM
AM - DET
5110 10,7 MHz
5111 450 kHz
5112 450 kHz
5114 450 kHz
3192 0E
2140 470n
7101
TEA5762
VCC1
VDD
STABILIZER
FM-IF2
V Stab B
FM-IF2I
V Stab A
AM-MIX Out
AM-IF1 In
AM-IF2
AM-AFC
AFC-
AFC+
VCC2
+9,6V
+8V
1,4V
FM-IF1I In
FM IF1
FM IF2
FM Osc.
CHARGE PUMP
AM FRONTEND
AM MIXER
AM OSC.
FM DET
AM IF
AM DET
AFC
CONTROL
AGC
XTAL OSC
STEREO DECODER
I-Tune
AM-RF
Ripple
AM-Osc.
FM GND
RF GND
IF GND
Dig. GND
RF GND
FM-Demod
AGC
AF-Out
Fieldstrength Indc.
MPX-In
VCO
LPF
WRITE Enable
DATA
CLOCK
P1
FM/AM
P0
Mono/Stereo
Left
Mute
Right
PILOT Filter
0,7V
0,9V
2V
1V
0,8V
2139 100n
3184 0E
2129 1µ
2151 15p
2152 82p
5107 Toko 7KM
3183 0E
2128 10µ
3185 0E
2141 100n
3162 220k
2160 12p
2161 1n
5121 75 kHz
2127 220n
3141 56k
3142 100k
3145 2k2
2132 470n
2131 470n
VCO
2133 1µ
2138 2µ2
75 kHz
5115
ANTI BIRDY FILTER
7103 BC858C
3143
3144 1k
1,3V
3186 1k
2158 100n
6120 1N4148
2145 220p
2147 220p
2148 22n
3161 470E
3160 470E
3159 470E
3158 470E
1126
STEREO = LOW
1121
GND
MPX-RDS (VCC2)
ENABLE
DATA
CLOCK
STEREO
1,3V
mono stereo
High = During communication
During communication
0V = No communication
1124
LEFT
GND
RIGHT
VCC +12V
2135 220n
3152 470E
2134 15n
2137 220n
3153 470E
2136 15n
11,8V
11,2V
3150 4k7
3151 68k
2162 22µ
7110 BC858B
AM FM
<0,5V
+12V
3164 4E7
3167 220E
VCC1 +8V
2130 22n
3154 220E
VDD
+7V
+6V
3155 330E
2144 1µ
VCC2 +9,6V
2142 100n
2143 220n
6107 BZX79/C11
3146 47E
3188 0E
3178 0E
3147 0E
....V FM mode stereo
FM
AM
Signal path
FM
AM
AF
△ only in RDS version (04121)
○ not in RDS version (04341)
A
B
C
1
2
3
4
6
7

ELECTRICAL PARTS LIST - TUNER 95 BOARD

MISCELLANEOUS

1102	4822 267 10283	Socket Coaxial IEC 75R
1103	4822 265 31184	JST Connector 2 pin
1110	4822 210 10739	Frontend Assembly FE415-G23

CAPACITORS

2102	4822 124 40433	47µF 20% 25V
2106	4822 125 60102	Trimmer 5,2-30pF 100V
2107	4822 121 51252	470nF 5% 63V
2108	4822 126 13695	82pF 1% 63V
2109	4822 126 13691	27pF 1% 63V
2120	5322 122 32659	33pF 5% 50V
2122	5322 126 10465	3,9nF 10% 50V
2123	4822 121 10766	390pF 1% 630V
2125	4822 121 10578	560pF 1% 630V
2127	4822 122 32927	220nF +80/-20% 50V
2128	4822 124 41579	10µF 20% 50V
2129	4822 124 40242	1µF 20% 63V
2130	4822 126 11585	22nF +80/-20% 25V
2131	4822 122 33325	470nF 16V
2132	4822 122 33325	470nF 16V
2133	4822 124 40242	1µF 20% 63V
2134	4822 126 13188	15nF 5% 63V
2135	4822 122 32927	220nF +80/-20% 50V
2136	4822 126 13188	15nF 5% 63V
2137	4822 122 32927	220nF +80/-20% 50V
2138	4822 124 41576	2,2µF 20% 50V
2139	4822 126 10002	100nF 20% 25V
2140	4822 121 51252	470nF 5% 63V
2141	4822 122 31947	100nF 20% 63V
2142	4822 122 31947	100nF 20% 63V
2143	4822 122 32927	220nF +80/-20% 50V
2144	4822 124 40242	1µF 20% 63V
2145	4822 122 33575	220pF 5% 50V
2147	4822 122 33575	220pF 5% 50V
2148	4822 122 33809	22nF 20% 50V
2150	4822 122 31947	100nF 20% 63V
2151	4822 126 14236	15pF 5% 50V
2152	4822 126 13695	82pF 1% 63V
2158	4822 122 31947	100nF 20% 63V
2160	4822 122 32139	12pF 2% 63V
2161	5322 122 34123	1nF 10% 50V
2162	4822 124 81151	22µF 50V

RESISTORS

3103	4822 051 20008	0R Jumper 0805
3104	4822 051 10102	1k 2% 0,25W
3107	4822 051 20829	82R 5% 0,1W
3108	4822 117 11449	2k2 1% 0,1W
3109	4822 117 11449	2k2 1% 0,1W
3120	4822 051 20008	0R Jumper 0805
3123	4822 051 10008	0R Jumper 1206
3124	4822 051 10008	0R Jumper 1206
3125	4822 116 83864	10k 5% 0,5W
3128	4822 116 52256	2k2 5% 0,5W
3129	4822 051 20008	0R Jumper 0805
3130	4822 051 10008	0R Jumper 1206
3131	4822 051 10008	0R Jumper 1206
3132	4822 051 20008	0R Jumper 0805
3134	4822 051 20223	22k 5% 0,1W
3137	4822 117 10833	10k 1% 0,1W
3138	4822 051 20008	0R Jumper 0805
3139	4822 051 10008	0R Jumper 1206
3140	4822 051 20331	330R 5% 0,1W
3141	4822 117 11148	56k 1% 0,1W
3142	4822 100 11163	Trimmer 100k 30% 0,1W
3143	4822 051 20223	22k 5% 0,1W
3144	4822 051 10102	1k 2% 0,25W
3145	4822 117 11449	2k2 1% 0,1W
3146	4822 051 20479	47R 5% 0,1W
3147	4822 051 10008	0R Jumper 1206
3150	4822 051 20472	4k7 5% 0,1W
3151	4822 051 20683	68k 5% 0,1W
3152	4822 051 20471	470R 5% 0,1W
3153	4822 051 20471	470R 5% 0,1W
3154	4822 116 83872	220R 5% 0,5W
3155	4822 116 52219	330R 5% 0,5W
3158	4822 116 83883	470R 5% 0,5W
3159	4822 116 83883	470R 5% 0,5W
3160	4822 116 83883	470R 5% 0,5W
3161	4822 116 83883	470R 5% 0,5W
3162	4822 117 13579	220k 1% 0,1W
3163	4822 051 10008	0R Jumper 1206
3164	4822 052 10478 ⚠	4R7 5% 0,33W
3165	4822 051 10008	0R Jumper 1206
3167	4822 116 83872	220R 5% 0,5W
3169	4822 051 20008	0R Jumper 0805
3171	4822 051 20008	0R Jumper 0805
3172	4822 051 10008	0R Jumper 1206
3173	4822 051 20008	0R Jumper 0805
3176	4822 051 20008	0R Jumper 0805
3177	4822 051 20223	22k 5% 0,1W
3178	4822 051 10008	0R Jumper 1206
3181	4822 051 10008	0R Jumper 1206
3183	4822 051 10008	0R Jumper 1206
3184	4822 051 10008	0R Jumper 1206
3185	4822 051 10008	0R Jumper 1206
3186	4822 051 10102	1k 2% 0,25W
3188	4822 051 10008	0R Jumper 1206
3192	4822 051 20008	0R Jumper 0805
3197	4822 051 20472	4k7 5% 0,1W

COILS & FILTERS

5102	4822 157 71634	MW Aerial
5103	4822 157 71635	LW Aerial
5107	4822 157 11443	FM Discriminator 10,7MHz
5109	4822 157 71639	Ceram Filter 10,7MHz
5110	4822 242 70665	Ceram Filter 10,7MHz
5111	4822 158 60511	AM-IF Filter 450kHz
5112	4822 157 70302	AM-IF Filter 450kHz
5114	4822 157 70302	AM_IF Filter 450kHz
5115	4822 157 71636	Anti-Birdy Filter
5121	4822 242 10261	X'tal Resonator 75kHZ
5122	4822 157 60517	RF Coil AM
5123	4822 157 60517	RF Coil AM

DIODES

6105	4822 130 83075	HN1V02H-B
6106	4822 130 30621	1N4148
6107	4822 130 34488	BZX79-C11
6120	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7101	4822 209 90315	TEA5762H/V1
7103	4822 130 42513	BC858C
7104	5322 130 44779	BC338-40
7105	5322 130 44779	BC338-40
7109	5322 130 41983	BC858B
7110	5322 130 41983	BC858B
7122	5322 130 42136	BC848C
7124	5322 130 42136	BC848C

Note : Only the parts mentioned in this list are normal service spare parts.

ECO MTF MODULE

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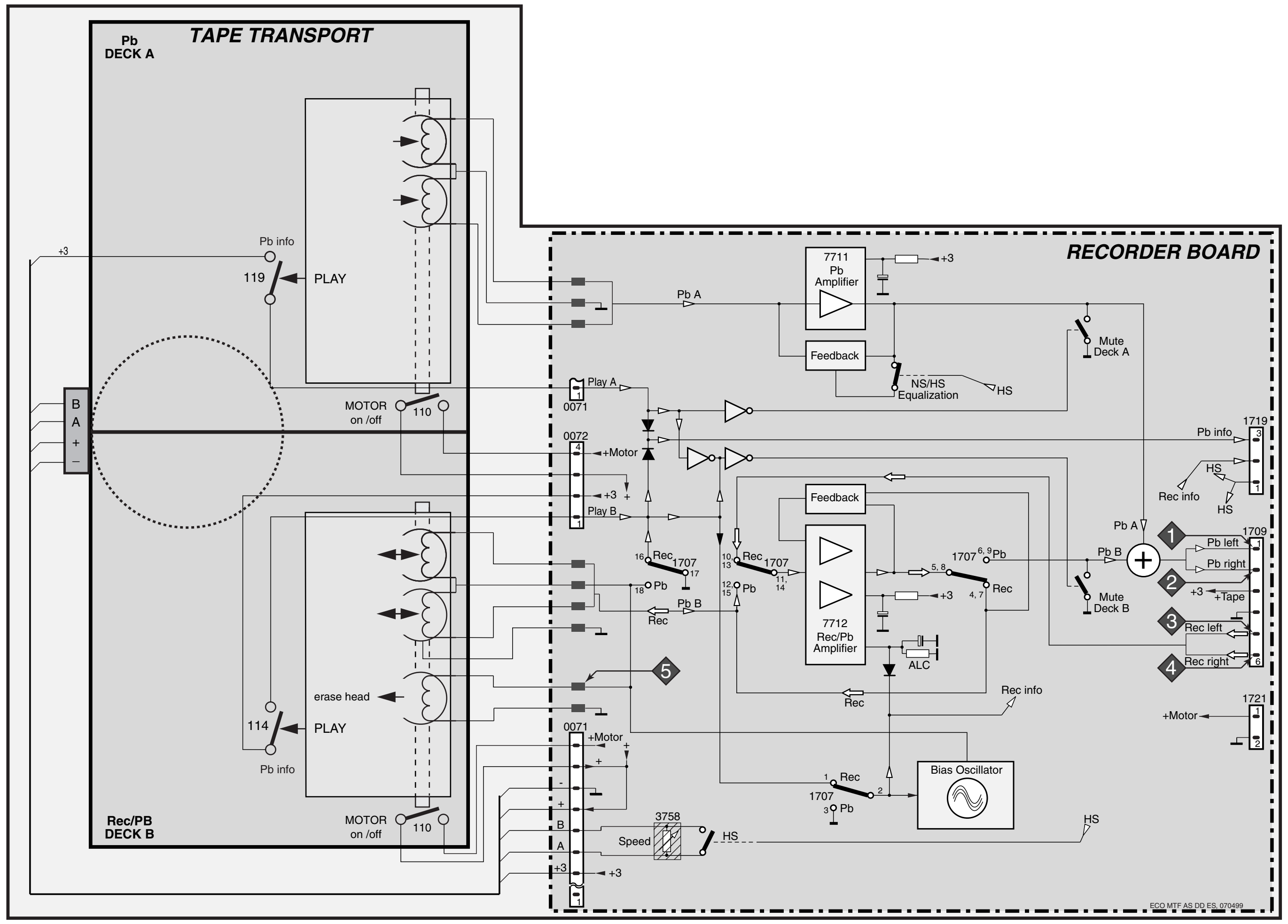
Block Diagram 9-1
Circuit Diagram 9-2
Component Layout 9-3
Adjustment Table 9-3
Exploded Views & Mechanical Parts Lists 9-4
Electrical parts list... 9-5

BLOCK DIAGRAM

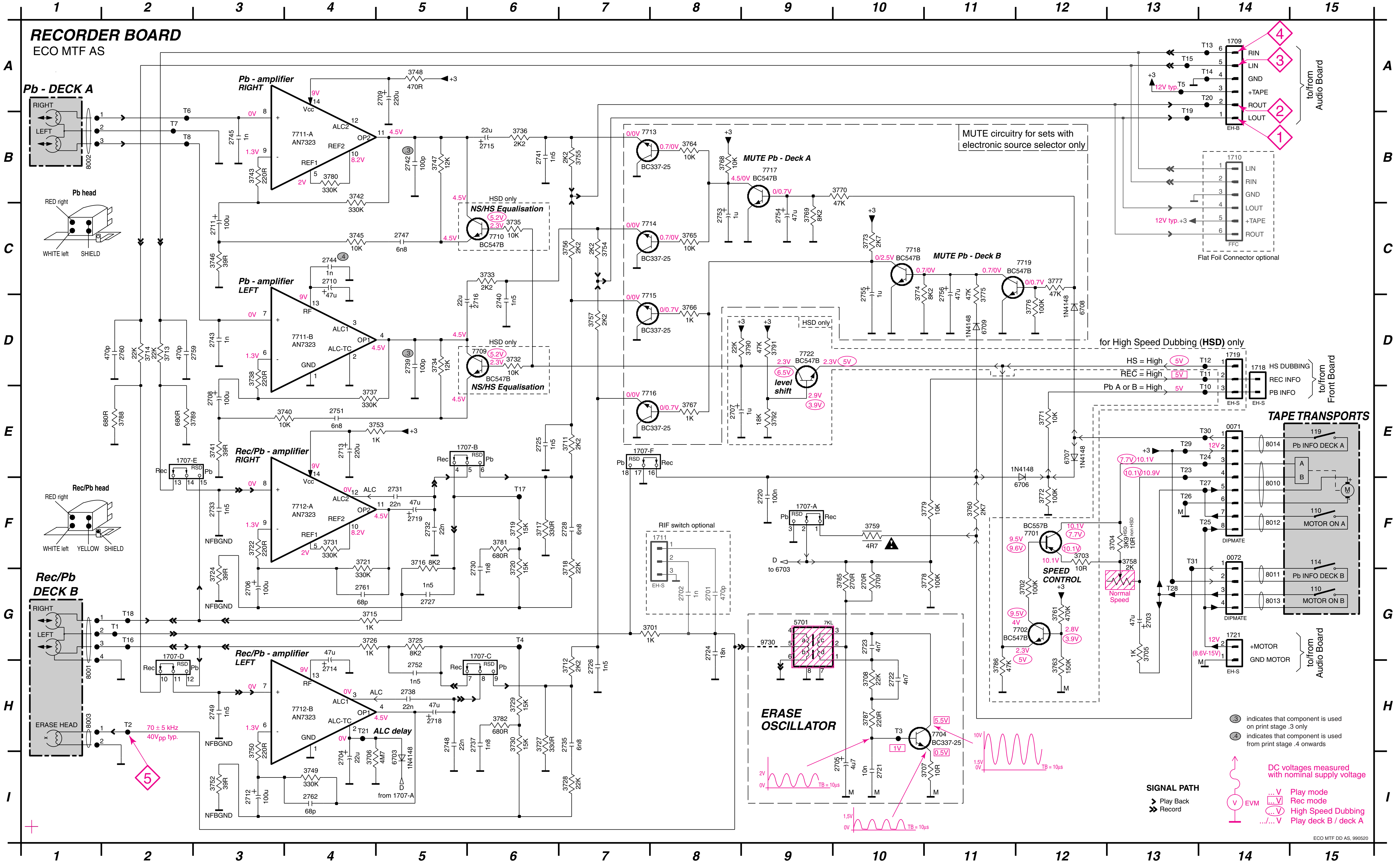
RECORDER MODULE *ECO MTF-AS-DD-ES*


TAPE TRANSPORT
Pb
DECK A
Pb info
119
PLAY
+3
MOTOR
on /off
110
B
A
+
–
erase head
114
PLAY
Pb info
Rec/PB
DECK B
MOTOR
on /off
110
RECORDER BOARD
Pb A
7711
Pb
Amplifier
+3
Feedback
NS/HS
Equalization
HS
Mute
Deck A
Play A
0071
0072
+Motor
+3
Play B
Pb info
1719
HS
Rec info
HS
Feedback
16
Rec
1707
17
18
Pb
Pb B
Rec
10, 13
Rec
1707
11, 14
12, 15
Pb
7712
Rec/Pb
Amplifier
+3
ALC
5, 8
1707
6, 9
Pb
Rec
4, 7
Mute
Deck B
Pb A
Pb B
1
2
3
4
5
1709
Pb left
Pb right
+3
+Tape
Rec left
Rec right
Rec
Rec info
1721
+Motor
0071
+Motor
+
-
+
B
A
+3
+3
1
Rec
1707
2
3
Pb
Bias Oscillator
3758
Speed
HS
HS
ECO MTF AS DD ES, 070499

0071	E14
0072	F14
1707-A	F9
1707-B	E5
1707-C	G6
1707-D	G2
1707-E	E2
1707-F	E7
1709	A14
1710	B14
1719	D14
1721	G14
1780	D14
2701	G8
2702	G8
2703	G13
2704	I4
2705	I10
2706	G3
2707	E8
2708	E3
2709	A5
2710	C4
2711	C3
2712	I3
2713	E4
2714	H4
2715	B6
2716	D6
2718	H5
2719	F5
2720	F9
2721	I10
2722	H10
2723	G10
2724	G8
2725	E6
2726	H7
2727	G5
2728	F7
2730	F6
2731	F5
2732	F5
2733	F3
2735	H7
2737	H6
2738	H5
2739	D5
2740	D6
2741	B6
2742	B5
2743	D3
2744	C4
2745	B3
2747	C5
2748	H5
2749	H3
2751	E4
2752	H5
2753	C8
2754	C9
2755	C10
2756	C11
2759	D2
2760	D2
2761	G4
2762	I4
3701	G8
3702	G12
3703	F12
3704	F13
3705	G13
3706	I4
3707	I11
3708	H10
3709	G10
3711	E7
3712	H7
3713	D2
3714	D2
3715	G4
3716	F5
3717	F6
3718	F7
3719	F6
3720	F6
3721	F4
3722	F3
3724	G3
3725	G5
3726	G4
3727	H6
3728	I7
3729	H6
3730	H6
3731	F4
3732	D6
3733	C6
3734	D5
3735	C6
3736	B6
3737	E4
3738	D3
3740	E4
3741	E3
3742	B4
3743	B3
3745	C4
3746	C3
3747	B5
3748	A5
3749	I4
3750	H3
3752	I3
3753	E5
3754	C7
3755	B7
3756	C7
3757	D7
3758	F13
3759	F10
3760	F11
3761	G12
3763	H12
3764	B8
3765	C8
3766	D8
3767	E8
3768	B8
3769	C9
3770	B10
3771	E12
3772	F12
3773	C10
3774	C10
3775	D11
3776	D12
3777	C12
3778	G11
3779	F11
3780	B4
3781	F6
3782	H6
3785	G10
3786	H11
3787	H10
3788	E2
3789	E2
3790	D9
3791	D9
3792	E9
5701	G9
6703	I5
6706	F12
6707	E12
6708	D12
6709	D11
7701	F12
7702	G12
7704	H11
7709	D6
7710	C6
7711-A	B4
7711-B	D4
7712-A	F4
7712-B	H4
7713	B8
7714	C8
7715	C8
7716	E8
7717	B9
7718	C10
7719	C12
7722	D9
9730	G9

RECORDER BOARD

ECO MTF AS


1
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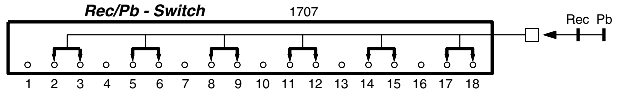
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
Pb - DECK A
RIGHT
LEFT
Pb head
RED right
WHITE left
SHIELD
Pb - amplifier RIGHT
7711-A AN7323
Pb - amplifier LEFT
7711-B AN7323
Rec/Pb - amplifier RIGHT
7712-A AN7323
Rec/Pb - amplifier LEFT
7712-B AN7323
ALC delay
HSD only
NS/HS Equalisation
MUTE circuitry for sets with electronic source selector only
MUTE Pb - Deck A
MUTE Pb - Deck B
level shift
Rec/Pb head
YELLOW
Rec/Pb DECK B
ERASE HEAD
70 ± 5 kHz
40Vpp typ.
RIF switch optional
ERASE OSCILLATOR
SPEED CONTROL
Normal Speed
for High Speed Dubbing (HSD) only
HS = High
REC = High
Pb A or B = High
HS DUBBING
REC INFO
PB INFO
to/from Front Board
RIN
LIN
GND
+TAPE
ROUT
LOUT
to/from Audio Board
Flat Foil Connector optional
TAPE TRANSPORTS
Pb INFO DECK A
MOTOR ON A
Pb INFO DECK B
MOTOR ON B
+MOTOR
GND MOTOR
DIPMATE
from 1707-A
to 6703
indicates that component is used on print stage .3 only
indicates that component is used from print stage .4 onwards
DC voltages measured with nominal supply voltage
...V Play mode
...V Rec mode
(...V) High Speed Dubbing
.../...V Play deck B / deck A
SIGNAL PATH
Play Back
Record
EVM
ECO MTF DD AS, 990520

Rec/Pb - Switch 1707


Rec
Pb
1
2
3
4
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8
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10
11
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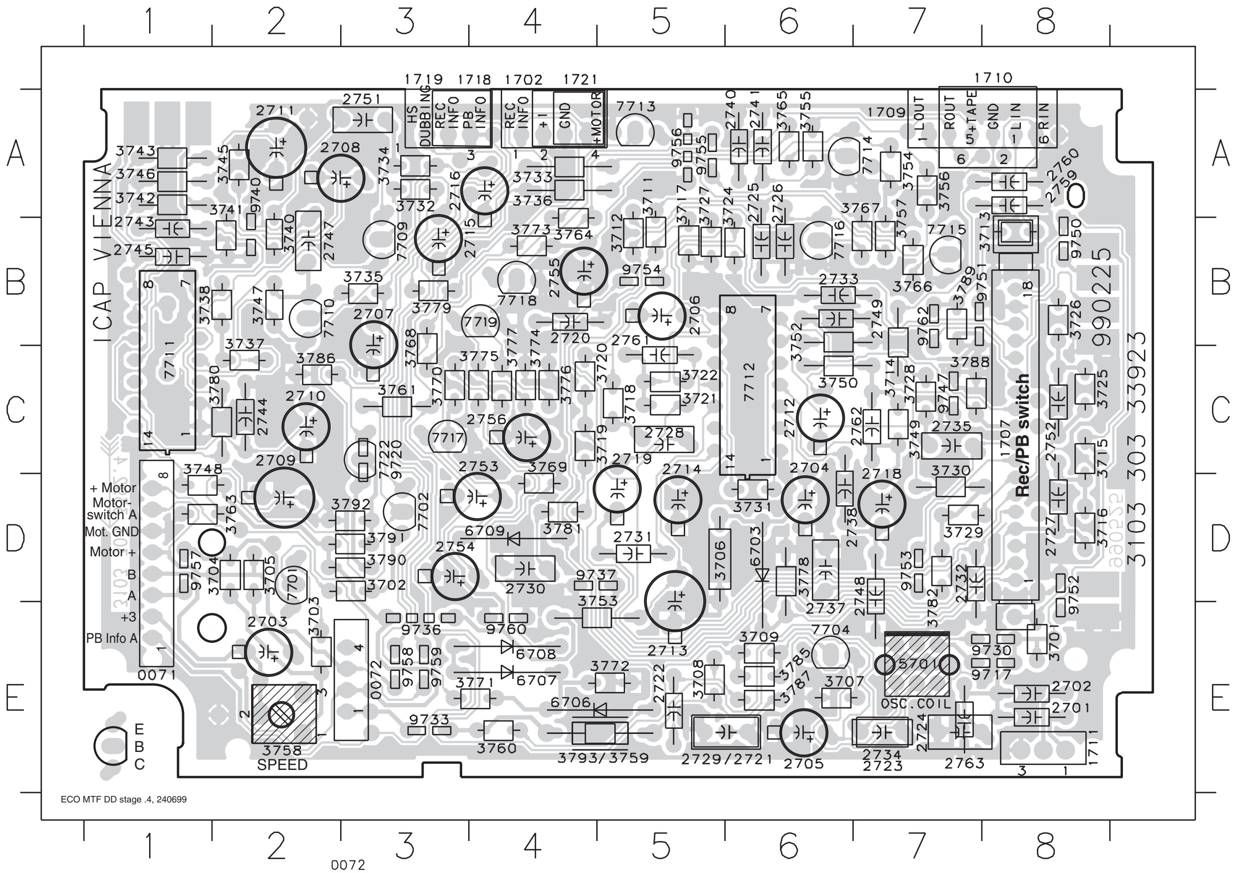
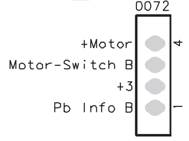
14
15
16
17
18

RECORDER BOARD / componentside view

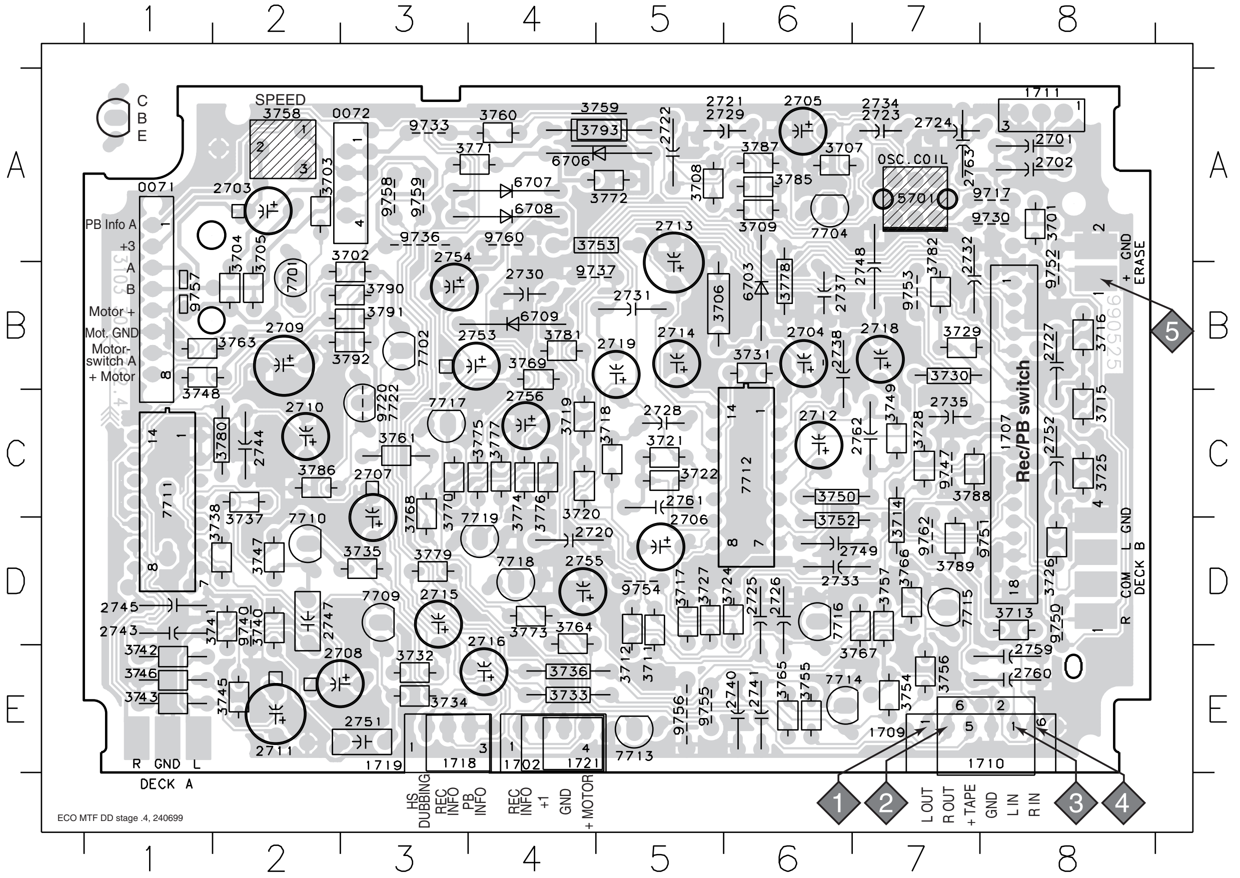

1
2
3
4
5
6
7
8
A
B
C
D
E
ICAP VIENNA
990225
3103 303 33923
Rec/PB switch
OSC.COIL
SPEED
+ Motor
Motor-switch A
Mot. GND
Motor +
B
A
+3
PB Info A
HS DUBBING
REC INFO
PB INFO
REC INFO
+1
GND
+ MOTOR
L OUT
R OUT
GND
+ TAPE
L IN
R IN
ECO MTF DD stage .4, 240699

0071	E1	2744	C2	3735	B3	3789	B7
0072	E3	2745	A1	3736	A4	3790	D3
1702	A5	2747	B2	3737	B2	3791	D3
1707	B8	2748	D7	3738	B2	3792	D3
1709	A7	2749	B7	3740	B2	3793	E4
1710	A7	2751	A3	3741	A2	5701	E7
1711	E8	2752	C8	3742	B1	6703	D6
1719	A3	2753	D4	3743	B1	6706	E4
1721	A4	2754	D4	3745	A2	6707	E4
2701	E8	2755	B4	3746	A1	6708	E4
2702	E8	2756	C4	3747	B2	6709	D4
2703	E2	2759	A8	3748	C1	7701	D2
2704	C6	2760	A8	3749	C7	7702	D3
2705	E6	2761	B5	3750	C6	7704	E6
2706	B5	2762	C7	3752	B6	7709	B3
2707	B3	2763	E7	3753	D5	7710	B2
2708	A3	3701	E8	3754	A7	7711	C1
2709	D2	3702	D3	3755	A6	7712	B6
2710	C2	3703	E2	3756	A7	7713	A5
2711	A2	3704	D2	3757	B7	7714	A7
2712	C6	3705	D2	3758	E2	7715	B7
2713	E5	3706	D6	3759	E5	7716	B6
2714	D5	3707	E6	3760	E4	7717	C3
2715	B4	3708	E5	3761	C3	7718	B4
2716	A3	3709	E6	3763	D2	7719	B4
2718	D7	3711	A5	3764	B4	7722	C3
2719	D5	3712	B5	3765	A6	9717	E8
2720	B4	3713	B8	3766	B7	9720	C3
2721	E6	3714	C7	3767	A7	9730	E7
2722	E5	3715	C8	3768	C3	9733	E3
2723	E7	3716	D8	3769	C4	9736	E3
2724	E7	3717	B5	3770	C3	9737	D4
2725	A6	3718	C5	3771	E4	9740	B2
2726	A6	3719	C5	3772	E5	9747	C7
2727	D8	3720	C5	3773	B4	9750	B8
2728	C5	3721	C5	3774	C4	9751	B8
2729	E5	3722	C5	3775	C4	9752	D8
2730	D4	3724	A5	3776	C4	9753	D7
2731	D5	3725	C8	3777	C4	9754	B5
2732	D7	3726	B8	3778	D6	9755	A5
2733	B6	3727	A5	3779	B3	9756	A5
2734	E7	3728	C7	3780	C1	9757	D1
2735	C7	3729	D7	3781	D4	9758	E3
2737	E6	3730	C7	3782	E7	9759	E3
2738	D7	3731	D6	3785	E6	9760	E4
2740	A5	3732	A3	3786	C2	9762	B7
2741	A6	3733	A4	3787	E6		
2743	A1	3734	A3	3788	C7		


0072
+Motor
Motor-Switch B
+3
Pb Info B
4
1

These assembly drawings show a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

RECORDER BOARD / copperside view


1
2
3
4
5
6
7
8
A
B
C
D
E
SPEED
OSC.COIL
Rec/PB switch
PB Info A
+3
A
B
Motor +
Mot. GND
Motor-switch A
+ Motor
+ GND ERASE
R COM L GND DECK B
R GND L
DECK A
HS DUBBING
REC INFO
PB INFO
REC INFO
+1
GND
+ MOTOR
L OUT
R OUT
+ TAPE
GND
L IN
R IN
1
2
3
4
5
ECO MTF DD stage .4, 240699

0071	B1	2744	C2	3735	D3	3789	D7
0072	A3	2745	E1	3736	E4	3790	B3
1702	E4	2747	D2	3737	D2	3791	B2
1707	B8	2748	B7	3738	D2	3792	B3
1709	E8	2749	D6	3740	D2	3793	A5
1710	E8	2751	E3	3741	D1	5701	A7
1711	A8	2752	C8	3742	E1	6703	B6
1719	E3	2753	B4	3743	E1	6706	A4
1721	E4	2754	B3	3745	E2	6707	A4
2701	A8	2755	D5	3746	D1	6708	A4
2702	A8	2756	C4	3747	D2	6709	B4
2703	A2	2759	E8	3748	C1	7701	B2
2704	C6	2760	E8	3749	C7	7702	B3
2705	A6	2761	D5	3750	C6	7704	A6
2706	D5	2762	C7	3752	D6	7709	D3
2707	C3	2763	A7	3753	A4	7710	D2
2708	E3	3701	A8	3754	E7	7711	C1
2709	B2	3702	A3	3755	E6	7712	C6
2710	C2	3703	A2	3756	E7	7713	E5
2711	E2	3704	B2	3757	E7	7714	E7
2712	C6	3705	B2	3758	A2	7715	D7
2713	A5	3706	B5	3759	A5	7716	D6
2714	B5	3707	A6	3760	A4	7717	C3
2715	D4	3708	A5	3761	C3	7718	D4
2716	D4	3709	A6	3763	B2	7719	D4
2718	B7	3711	E5	3764	E4	7722	C3
2719	B5	3712	E5	3765	E6	9717	A8
2720	D4	3713	D8	3766	D7	9720	C3
2721	A6	3714	C7	3767	E7	9730	A7
2722	A5	3715	B8	3768	C3	9733	A3
2723	A7	3716	B8	3769	C4	9736	A3
2724	A7	3717	E5	3770	C3	9737	B4
2725	D6	3718	C5	3771	A4	9740	D2
2726	E6	3719	C5	3772	A5	9747	C7
2727	B8	3720	D4	3773	D4	9750	E8
2728	C5	3721	C5	3774	D4	9751	D8
2729	A6	3722	C5	3775	C4	9752	B8
2730	B4	3724	E6	3776	C4	9753	B7
2731	B5	3725	C8	3777	C4	9754	D5
2732	B7	3726	D8	3778	B6	9755	E6
2733	D6	3727	D5	3779	D3	9756	E5
2734	A7	3728	C7	3780	C2	9757	B1
2735	C7	3729	B7	3781	B4	9758	A3
2737	B6	3730	C7	3782	A7	9759	A3
2738	B7	3731	B5	3785	A6	9760	A4
2740	E6	3732	E3	3786	C2	9762	D7
2741	E6	3733	E4	3787	A6		
2743	E1	3734	E3	3788	C8		

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
General						
ADJUST MOTOR SPEED	SBC420 (4822 397 30071) 3150Hz	PLAY deck A or B	1 or 2 LEFT RIGHT or headphone socket	frequency counter	3758	3150Hz ±1%
CHECK WOW & FLUTTER	SBC420 (4822 397 30071) 3150Hz	PLAY deck A or B	1 or 2 LEFT RIGHT or headphone socket	W&F-meter	check only	≤0.4 % DIN or ≤0.35 % CCIR
ADJUST AZIMUTH	SBC420 (4822 397 30071) 10kHz	PLAY deck A PLAY deck B	1 2 LEFT RIGHT or headphone socket	mV-meter or oscilloscope	left hand screw	max. output level & left=right
Playback						
CHECK PLAYBACK FREQUENCY RESPONSE	SBC420 (4822 397 30071)	PLAY deck A PLAY deck B	1 or 2 LEFT RIGHT	mV-meter	Check	limits see fig.1
Recording						
PRE-ADJUST BIAS	FERRO	RECORD	5	mV-meter	5701	$14V_{rms}$ $(40V_{pp})$
CHECK OVERALL FREQUENCY RESPONSE	FERRO	RECORD				
Input signal: 3mV 100Hz, 250Hz, 1kHz, 10kHz via 3 or 4	RECORDED CASSETTE	PLAY	1 or 2 LEFT RIGHT	mV-meter	check only	limits see fig.2
CHECK DISTORTION Input signal: 300mV 1kHz	FERRO	RECORD				
via 3 or 4	RECORDED CASSETTE	PLAY	1 or 2 LEFT RIGHT	THD-meter	check only	≤5%

Remark: If high frequencies are not within lower limit, decrease bias and re-measure.
If distortion is too high increase bias and re-measure.

adj. ECO MTF DD AS, 110399

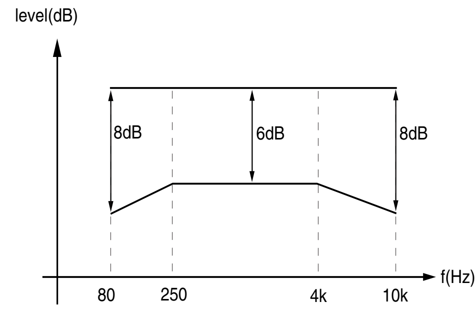


figure. 1

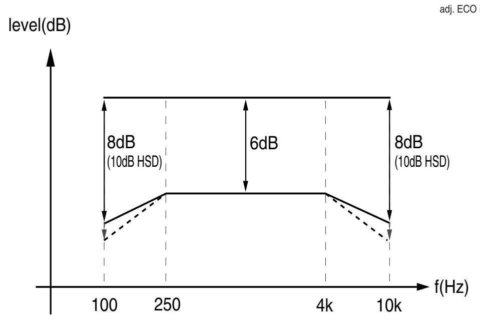
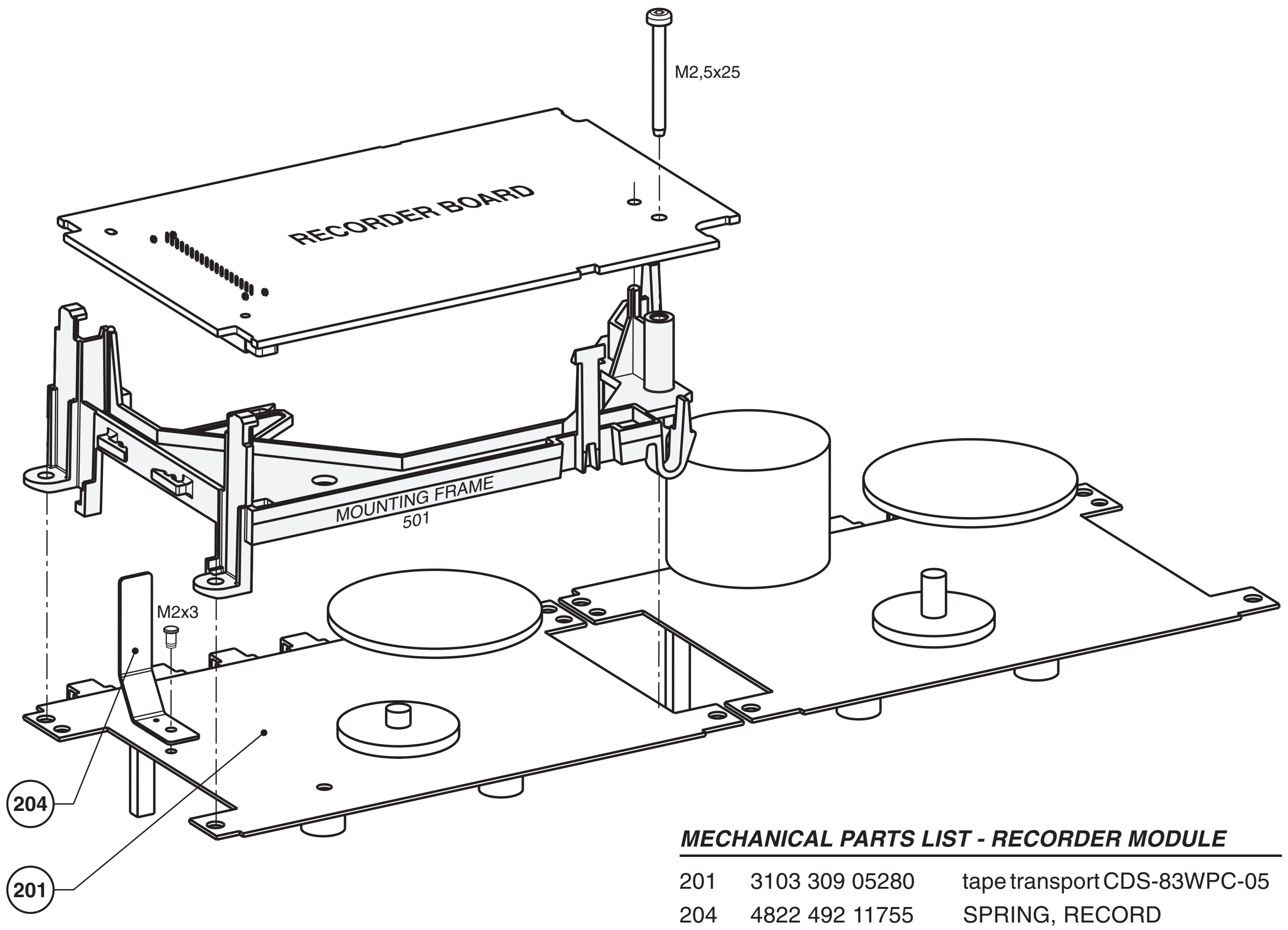


figure. 2

EXPLODED VIEW / RECORDER MODULE


M2,5x25
RECORDER BOARD
MOUNTING FRAME
501
M2x3
204
201

MECHANICAL PARTS LIST - RECORDER MODULE

201	3103 309 05280	tape transport CDS-83WPC-05
204	4822 492 11755	SPRING, RECORD

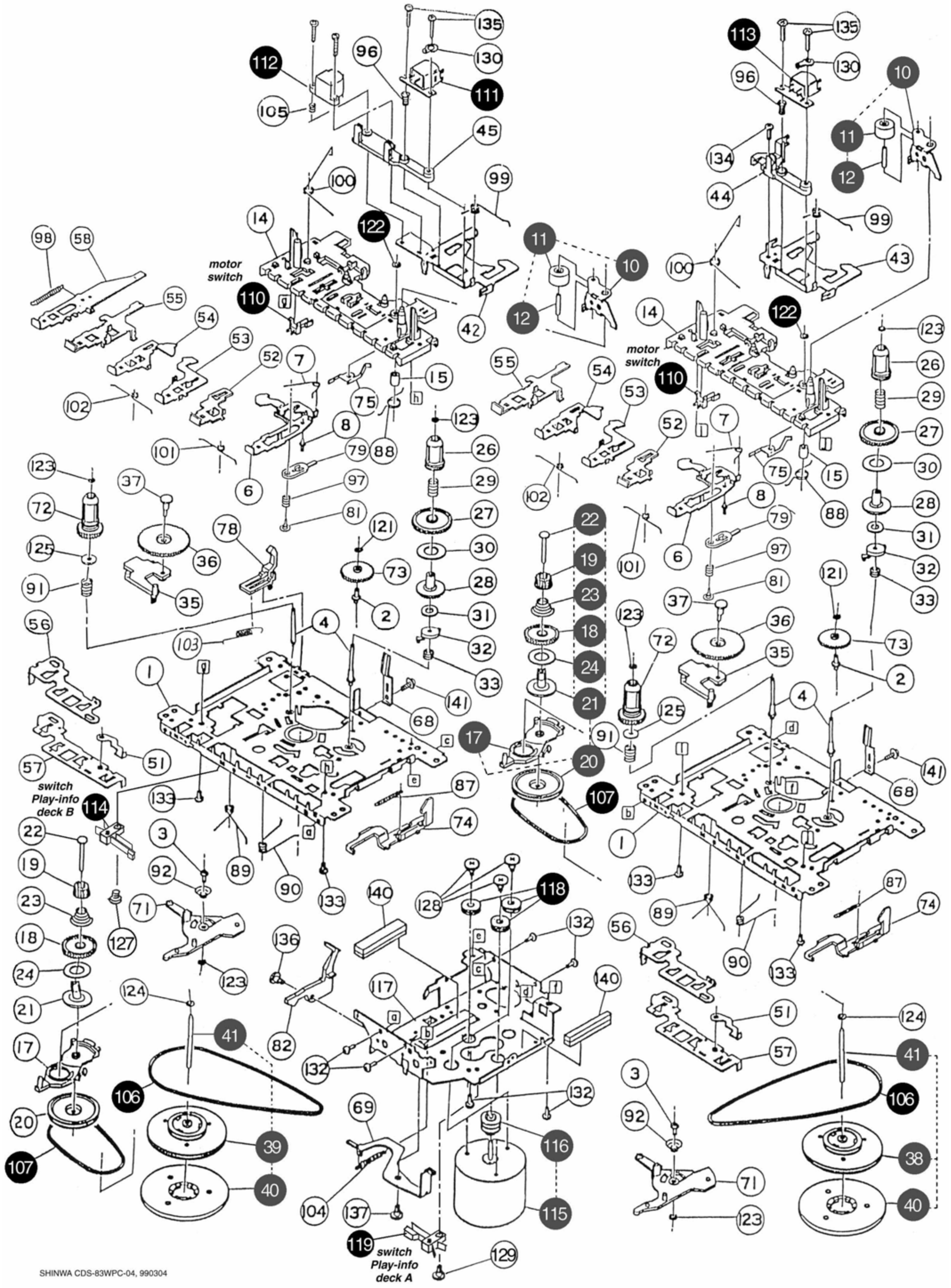
Note: Only the parts mentioned in this list are normal service spare parts.

MECHANICAL PARTS LIST - TAPE TRANSPORT

10-12	4822 528 11189	PINCH ROLLER ASSY
17-24	4822 402 10966	CLUTCH ASSY
38-41	4822 528 11242	FLYWHEEL ASSY, PB DECK
39-41	4822 528 11243	FLYWHEEL ASSY, REC/PB DECK
106	4822 358 31225	MAIN BELT
107	4822 358 31124	SUB BELT
110	4822 278 90663	LEAF SWITCH, MOTOR ON/OFF
111	4822 249 10565	REC/PB-HEAD, TC951-B
112	4822 249 10548	ERASE HEAD, LE15B-C1
113	4822 249 10565	REC/PB-HEAD, TC951-B
114	4822 277 11754	LEAF SWITCH, INDICAT. „PLAY“ REC/PB-DECK
115/116	4822 361 11053	MOTOR ASSY, EG530YD-2BH + PULLEY
118	4822 466 11787	MOTOR CUSHION
119	4822 277 11753	LEAF SWITCH, INDICAT. „PLAY“ PB-DECK
122	4822 532 12937	WASHER, 1.6X3.5X0.4

Note: Only the parts mentioned in this list are normal service spare parts.

EXPLODED VIEW TAPE TRANSPORT


motor switch
motor switch
switch Play-info deck B
switch Play-info deck A
SHINWA CDS-83WPC-04, 990304

ELECTRICAL PARTS LIST - ECO MTF BOARD

MISCELLANEOUS

1707	4822 277 11504	SWITCH SLIDE, REC/PB
1710	4822 265 11207	FFC-SOCKET 6P, SIDE ENTRY (not on all versions)

CAPACITORS

2703	4822 124 40433	47µF	20%	25V	
2704	4822 124 81151	22µF	20%	50V	
2705	4822 124 40769	4,7µF	20%	100V	
2706	4822 124 41584	100µF	20%	10V	
2707	4822 124 40242	1µF	20%	63V	HSD only
2708	4822 124 41584	100µF	20%	10V	
2709	4822 124 40196	220µF	20%	16V	
2710	4822 124 40433	47µF	20%	25V	
2711	4822 124 23432	100µF	20%	10V	
2712	4822 124 41584	100µF	20%	10V	
2713	4822 124 40196	220µF	20%	16V	
2714	4822 124 40433	47µF	20%	25V	
2715	4822 124 81151	22µF	20%	50V	
2716	4822 124 81151	22µF	20%	50V	
2718	4822 124 40433	47µF	20%	25V	
2719	4822 124 40433	47µF	20%	25V	
2720	4822 126 12882	100nF	20%	50V	
2721	4822 121 41857	10nF	5%	250V	
2722	4822 126 11714	4,7nF	20%	16V	
2723	4822 121 10686	4,7nF	10%	50V	
2724	4822 121 43179	18nF	5%	63V	
2725	4822 126 12878	1,5nF	10%	16V	
2726	4822 126 12878	1,5nF	10%	16V	
2727	4822 126 12878	1,5nF	10%	16V	
2728	4822 121 10746	6,8nF	10%	50V	
2730	4822 121 10685	1,8nF	10%	50V	
2731	4822 126 11585	22nF	20%	50V	
2732	4822 126 11585	22nF	20%	50V	
2733	4822 126 12878	1,5nF	10%	16V	
2735	4822 121 10746	6,8nF	10%	50V	
2737	4822 121 10685	1,8nF	10%	50V	
2738	4822 126 11585	22nF	20%	50V	
2739	4822 122 33195	100pF	10%	50V	.3 only
2740	4822 126 12878	1,5nF	10%	16V	
2741	4822 126 12878	1,5nF	10%	16V	
2742	4822 122 33195	100pF	10%	50V	.3 only
2743	4822 122 33197	1nF	10%	50V	
2744	4822 122 33197	1nF	10%	50V	.4 onwards
2745	4822 122 33197	1nF	10%	50V	
2747	4822 121 10746	6,8nF	10%	50V	
2748	4822 126 11585	22nF	20%	50V	
2749	4822 126 12878	1,5nF	10%	16V	
2751	4822 121 10746	6,8nF	10%	50V	
2752	4822 126 12878	1,5nF	10%	16V	
2753	4822 124 40242	1µF	20%	63V	
2754	4822 124 40433	47µF	20%	25V	
2755	4822 124 40242	1µF	20%	63V	
2756	4822 124 40433	47µF	20%	25V	
2759	4822 122 33519	470pF	10%	50V	
2760	4822 122 33519	470pF	10%	50V	
2761	4822 126 10329	68pF	10%	50V	
2762	4822 126 10329	68pF	10%	50V	

RESISTORS

3701	4822 050 11002	1kΩ	5%	0,2W	
3702	4822 116 52234	100kΩ	5%	0,5W	HSD only
3703	4822 116 52176	10Ω	5%	0,5W	HSD only
3704	4822 116 52176	10Ω	5%	0,5W	Normal Speed only
3704	4822 116 52276	3,9kΩ	5%	0,5W	HSD only
3705	4822 050 11002	1kΩ	5%	0,2W	
3706	4822 050 24705	4,7MΩ	1%	0,6W	
3707	4822 116 52176	10Ω	5%	0,5W	
3708	4822 116 52257	22kΩ	5%	0,5W	
3709	4822 116 83876	270Ω	5%	0.16W	
3711	4822 116 52256	2,2kΩ	5%	0,16W	
3712	4822 116 52256	2,2kΩ	5%	0,16W	
3713	4822 116 52257	22kΩ	5%	0,5W	
3714	4822 116 52257	22kΩ	5%	0,5W	
3715	4822 050 11002	1kΩ	5%	0,2W	
3716	4822 116 52303	8,2kΩ	5%	0,5W	
3717	4822 116 52219	330Ω	5%	0,5W	
3718	4822 116 52257	22kΩ	5%	0,5W	
3719	4822 116 52244	15kΩ	5%	0,5W	
3720	4822 116 52244	15kΩ	5%	0,5W	
3721	4822 116 52272	330kΩ	5%	0,5W	
3722	4822 116 83872	220Ω	5%	0,5W	
3724	4822 116 52193	39Ω	5%	0,16W	
3725	4822 116 52303	8,2kΩ	5%	0,5W	
3726	4822 050 11002	1kΩ	5%	0,2W	
3727	4822 116 52219	330Ω	5%	0,5W	
3728	4822 116 52257	22kΩ	5%	0,5W	
3729	4822 116 52244	15kΩ	5%	0,5W	
3730	4822 116 52244	15kΩ	5%	0,5W	
3731	4822 116 52272	330kΩ	5%	0,5W	
3732	4822 116 83864	10kΩ	5%	0,5W	HSD only
3733	4822 116 52256	2,2kΩ	5%	0,16W	
3734	4822 116 52238	12kΩ	5%	0,5W	
3735	4822 116 83864	10kΩ	5%	0,5W	HSD only
3736	4822 116 52256	2,2kΩ	5%	0,16W	
3737	4822 116 52272	330kΩ	5%	0,5W	
3738	4822 116 83872	220Ω	5%	0,5W	
3740	4822 116 83864	10kΩ	5%	0,5W	
3741	4822 116 52193	39Ω	5%	0,16W	
3742	4822 116 52272	330kΩ	5%	0,5W	
3743	4822 116 83872	220Ω	5%	0,5W	
3745	4822 116 83864	10kΩ	5%	0,5W	
3746	4822 116 52193	39Ω	5%	0,16W	
3747	4822 116 52238	12kΩ	5%	0,5W	
3748	4822 116 83883	470Ω	5%	0,16W	

ELECTRICAL PARTS LIST - ECO MTF BOARD

RESISTORS

3749	4822 116 52272	330kΩ	5%	0,5W	
3750	4822 116 83872	220Ω	5%	0,5W	
3752	4822 116 52193	39Ω	5%	0,16W	
3753	4822 050 11002	1kΩ	5%	0,2W	
3754	4822 116 52256	2,2kΩ	5%	0,16W	
3755	4822 116 52256	2,2kΩ	5%	0,16W	
3756	4822 116 52256	2,2kΩ	5%	0,16W	
3757	4822 116 52256	2,2kΩ	5%	0,16W	
3758	4822 100 11368	2kΩ	TRIMPOT. LIN.		
3759 ⚠	4822 052 10478	4,7Ω	5%	NFR	
3760	4822 116 52263	2,7kΩ	5%	0,5W	
3761	4822 116 52285	470kΩ	5%	0,5W	HSD only
3763	4822 116 52245	150kΩ	5%	0,16W	HSD only
3764	4822 116 83864	10kΩ	5%	0,5W	
3765	4822 116 83864	10kΩ	5%	0,5W	
3766	4822 050 11002	1kΩ	5%	0,2W	
3767	4822 050 11002	1kΩ	5%	0,2W	
3768	4822 116 83864	10kΩ	5%	0,5W	
3769	4822 116 52303	8,2kΩ	5%	0,5W	
3770	4822 116 83884	47kΩ	5%	0,16W	
3771	4822 116 83864	10kΩ	5%	0,5W	
3772	4822 116 52234	100kΩ	5%	0,5W	
3773	4822 116 52263	2,7kΩ	5%	0,5W	
3774	4822 116 52303	8,2kΩ	5%	0,5W	
3775	4822 116 83884	47kΩ	5%	0,16W	
3776	4822 116 52234	100kΩ	5%	0,5W	
3777	4822 116 83884	47kΩ	5%	0,16W	
3778	4822 116 52234	100kΩ	5%	0,5W	
3779	4822 116 83864	10kΩ	5%	0,5W	
3780	4822 116 52272	330kΩ	5%	0,5W	
3781	4822 116 52228	680Ω	5%	0,5W	
3782	4822 116 52228	680Ω	5%	0,5W	
3785	4822 116 83876	270Ω	5%	0.16W	
3786	4822 116 83884	47kΩ	5%	0,16W	HSD only
3787	4822 116 83872	220Ω	5%	0,5W	
3788	4822 116 52228	680Ω	5%	0,5W	
3789	4822 116 52228	680Ω	5%	0,5W	
3790	4822 116 52257	22kΩ	5%	0,5W	HSD only
3791	4822 116 83884	47kΩ	5%	0,16W	HSD only
3792	4822 116 52251	18kΩ	5%	0,5W	HSD only

COILS

5701	4822 157 10371	OSC. COIL VAR. 100kHz

DIODES

6703	4822 130 30621	1N4148
6706	4822 130 30621	1N4148
6707	4822 130 30621	1N4148
6708	4822 130 30621	1N4148
6709	4822 130 30621	1N4148

TRANSISTORS

7701	4822 130 44568	BC557B	HSD only
7702	4822 130 40959	BC547B	HSD only
7704	4822 130 40981	BC337-25	
7709	4822 130 40959	BC547B	HSD only
7710	4822 130 40959	BC547B	HSD only
7713	4822 130 40981	BC337-25	
7714	4822 130 40981	BC337-25	
7715	4822 130 40981	BC337-25	
7716	4822 130 40981	BC337-25	
7717	4822 130 40959	BC547B	
7718	4822 130 40959	BC547B	
7719	4822 130 40959	BC547B	
7722	4822 130 40959	BC547B	HSD only

INTEGRATED CIRCUITS

7711	4822 209 17498	AN7323, REC/PB-AMPLIFIER IC
7712	4822 209 17498	AN7323, REC/PB-AMPLIFIER IC

Note: Only the parts mentioned in this list are normal service parts.

3CDC-LC

(3 Disc Carrousel Changer)

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WARNING

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE
- ***SWITCH OFF POWER SUPPLY***
- ***ESD PROTECTION***

ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CD mechanism:
1. Disconnect CD drive flexfoil from old CD drive
2. Connect paperclip to CD drive flexfoil to short-circuit flexfoil (fig.1)
3. Remove old CD drive
4. Remove short-circuit from flexfoil
5. Connect flexfoil to new CD drive
6. Position new CD drive in its studs
7. Remove short-circuit from Laserunit

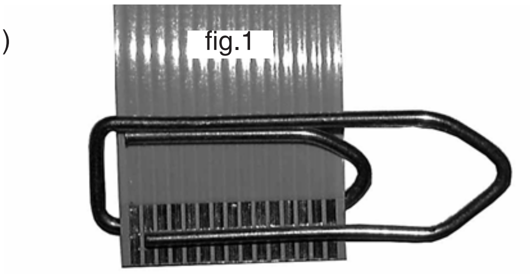
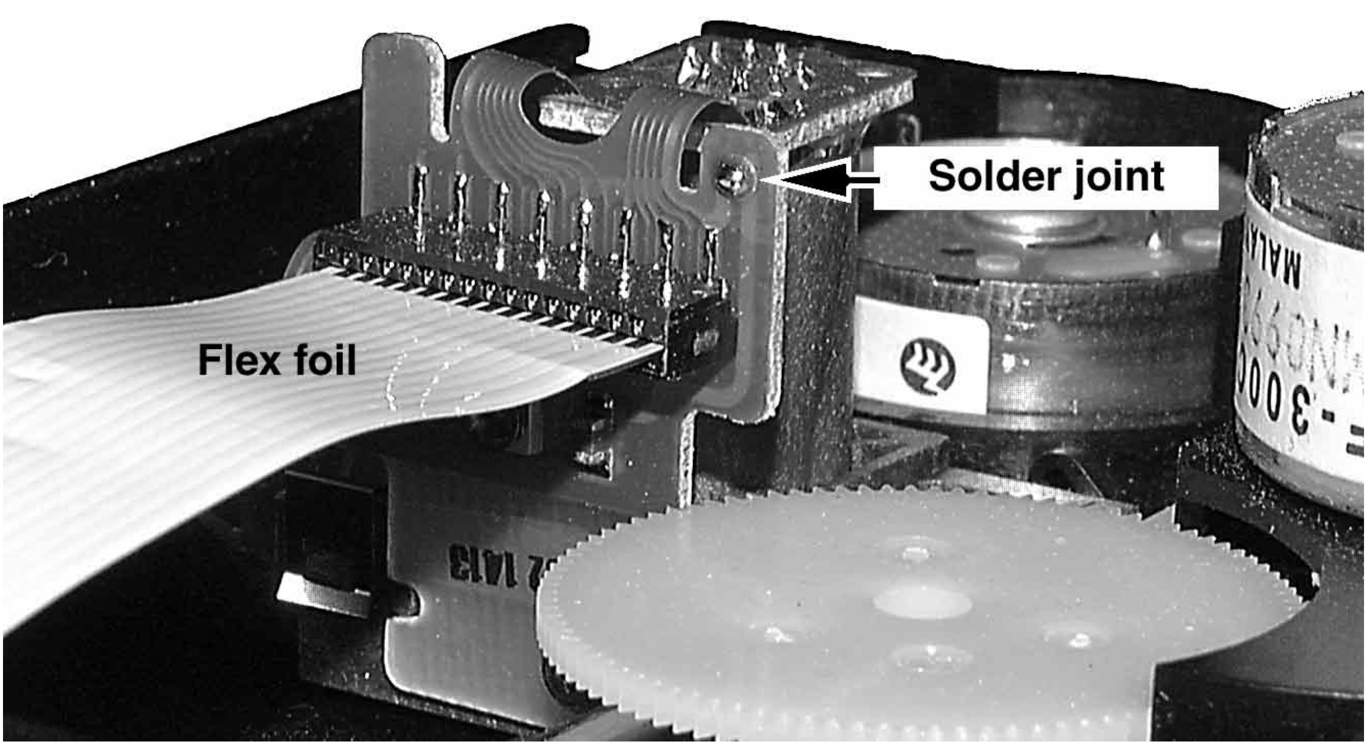
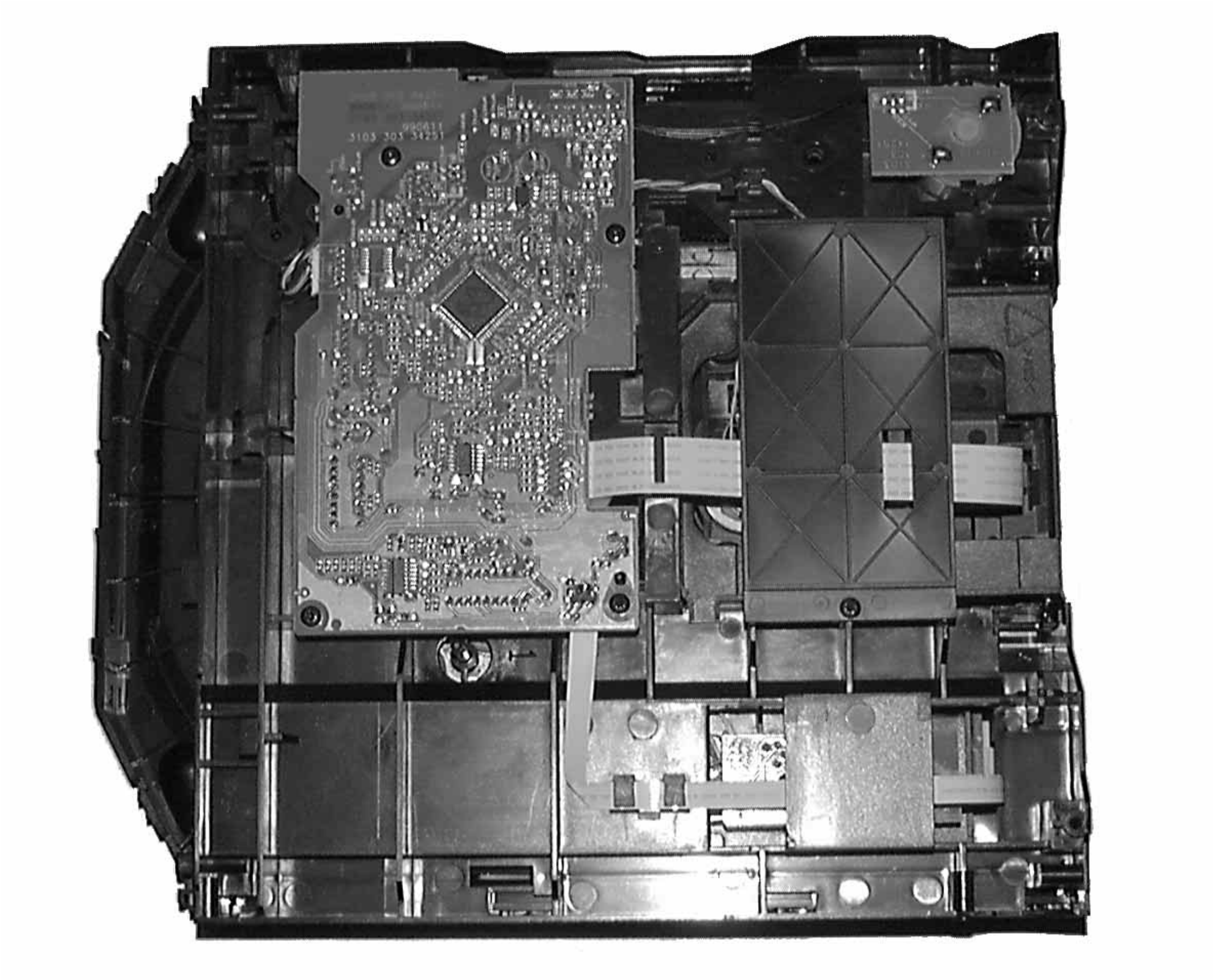


fig.1

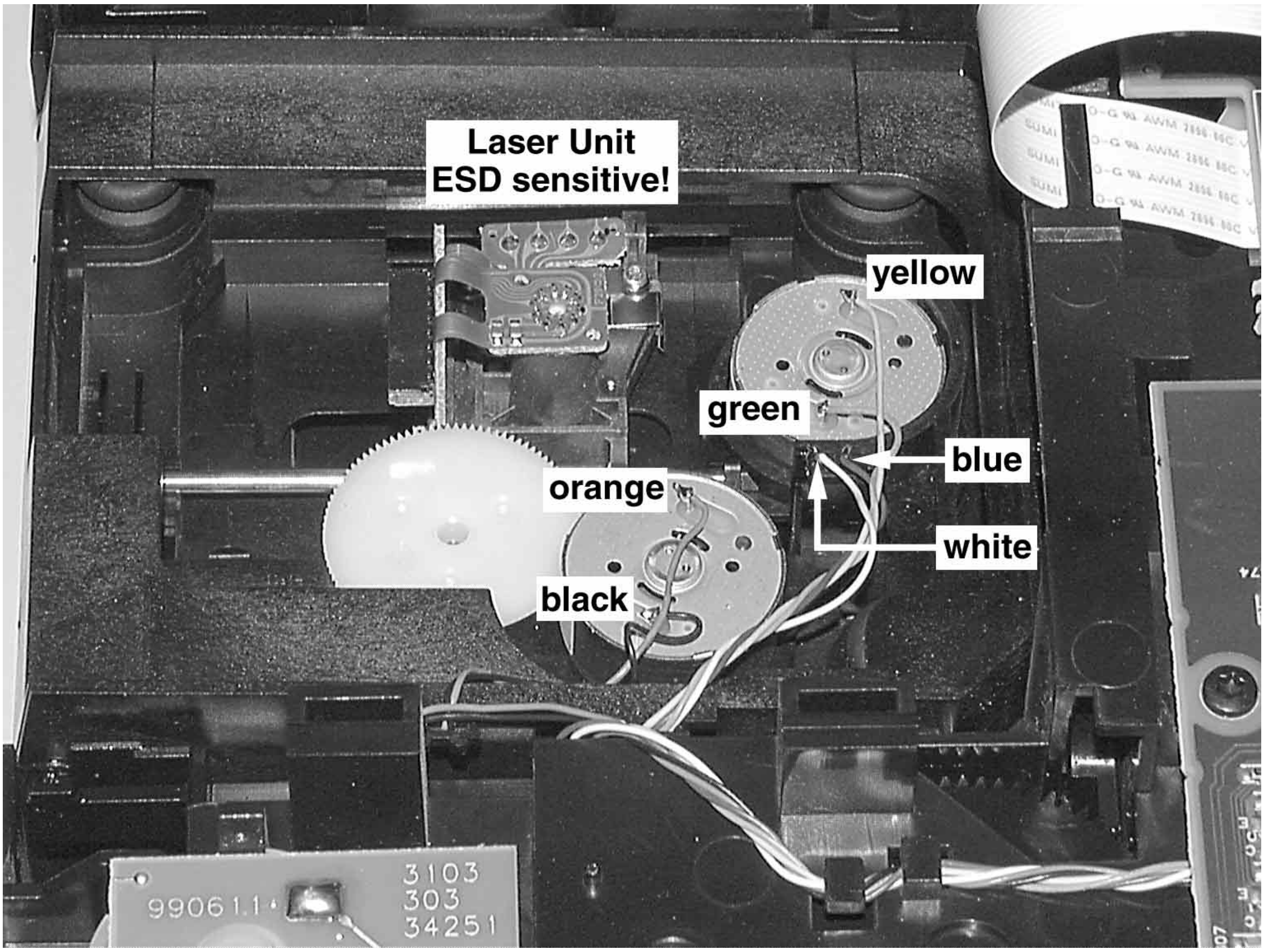
Attention: The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laserdiode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connection the drive to the set.



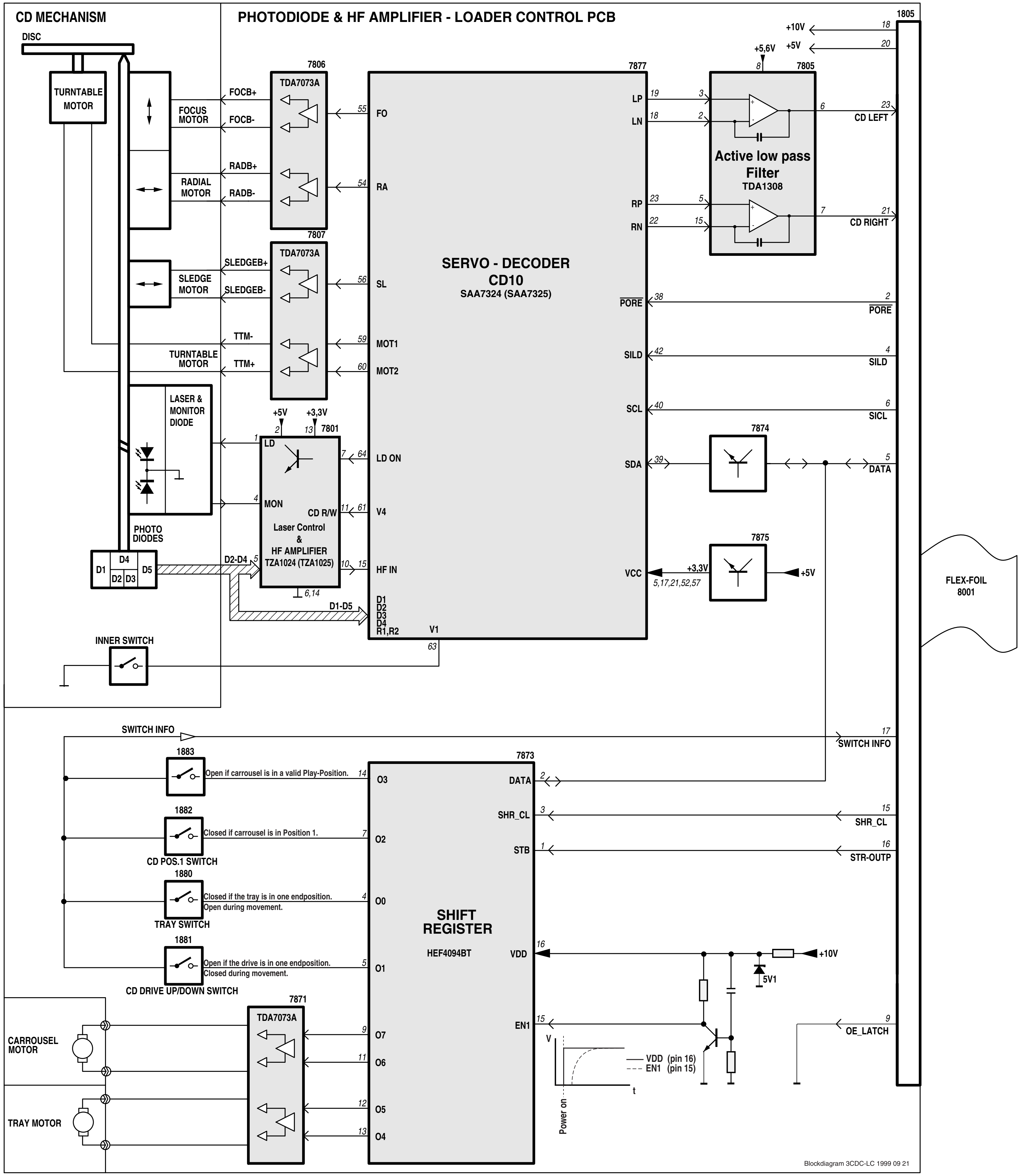
Service Position



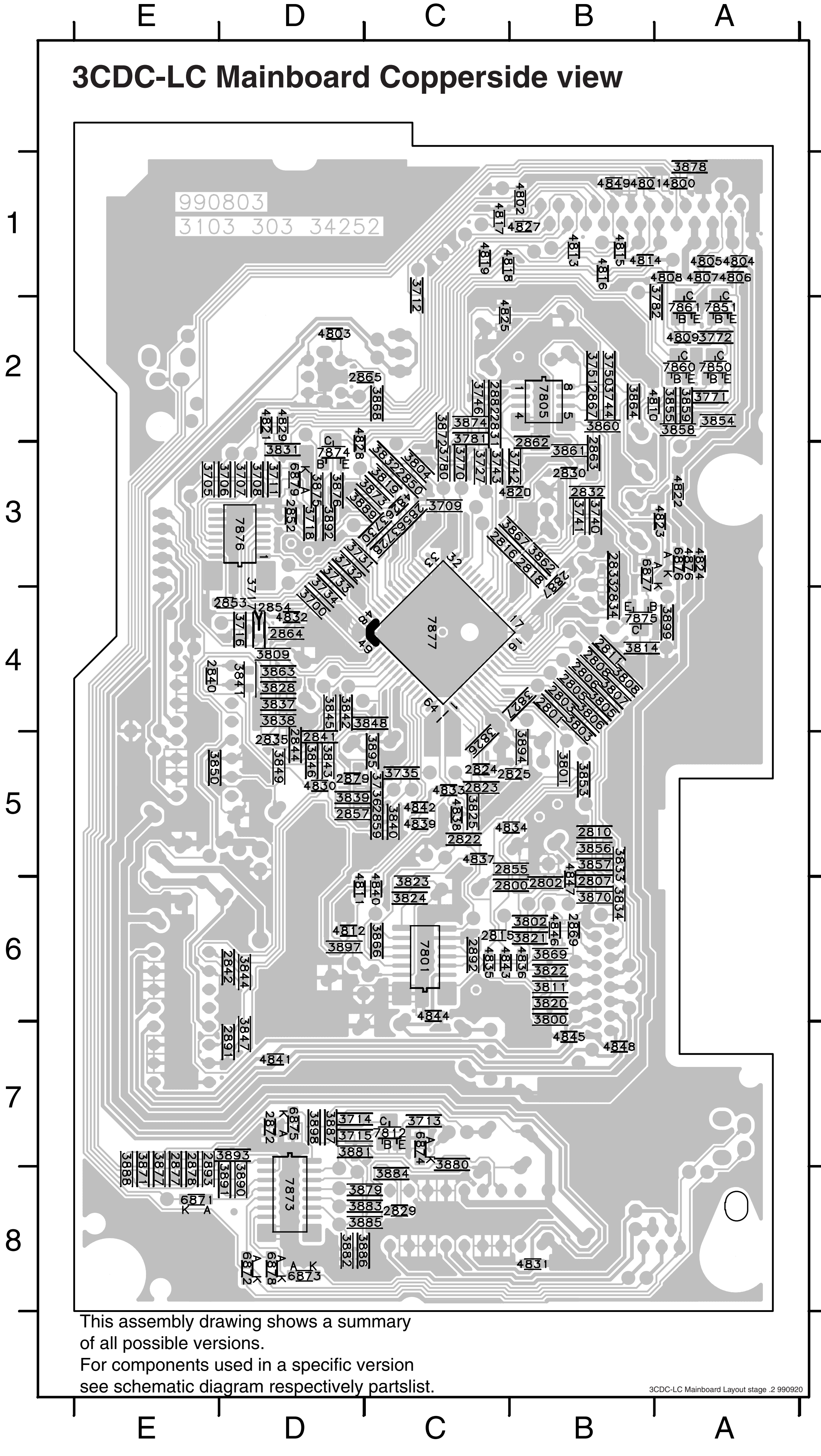
Wiring


Laser Unit
ESD sensitive!
yellow
green
blue
orange
white
black
99061.1
3103
303
34251

Blockdiagram


CD MECHANISM
PHOTODIODE & HF AMPLIFIER - LOADER CONTROL PCB
DISC
TURNTABLE MOTOR
FOCUS MOTOR
FOCB+
FOCB-
RADIAL MOTOR
RADB+
RADB-
SLEDGE MOTOR
SLEDGEB+
SLEDGEB-
TURNTABLE MOTOR
TTM-
TTM+
LASER & MONITOR DIODE
PHOTO DIODES
D1
D4
D2
D3
D5
D2-D4
D1-D5
INNER SWITCH
7806
TDA7073A
7807
TDA7073A
7801
+5V
+3,3V
LD
MON
CD R/W
Laser Control & HF AMPLIFIER
TZA1024 (TZA1025)
6,14
7877
SERVO - DECODER
CD10
SAA7324 (SAA7325)
FO
RA
SL
MOT1
MOT2
LD ON
V4
HF IN
D1 D2 D3 D4 R1,R2
V1
LP
LN
RP
RN
PORE
SILD
SCL
SDA
VCC
63
7805
+5,6V
Active low pass Filter
TDA1308
CD LEFT
CD RIGHT
PORE
SILD
SICL
7874
DATA
7875
+3,3V
+5V
5,17,21,52,57
1805
+10V
+5V
FLEX-FOIL 8001
SWITCH INFO
1883
Open if carrousel is in a valid Play-Position.
1882
Closed if carrousel is in Position 1.
CD POS.1 SWITCH
1880
Closed if the tray is in one endposition.
Open during movement.
TRAY SWITCH
1881
Open if the drive is in one endposition.
Closed during movement.
CD DRIVE UP/DOWN SWITCH
7873
SHIFT REGISTER
HEF4094BT
O3
O2
O0
O1
O7
O6
O5
O4
DATA
SHR_CL
STB
VDD
EN1
SHR_CL
STR-OUTP
+10V
5V1
OE_LATCH
7871
TDA7073A
CARROUSEL MOTOR
TRAY MOTOR
V
t
Power on
VDD (pin 16)
EN1 (pin 15)
Blockdiagram 3CDC-LC 1999 09 21

3CDC-LC Mainboard Copperside view

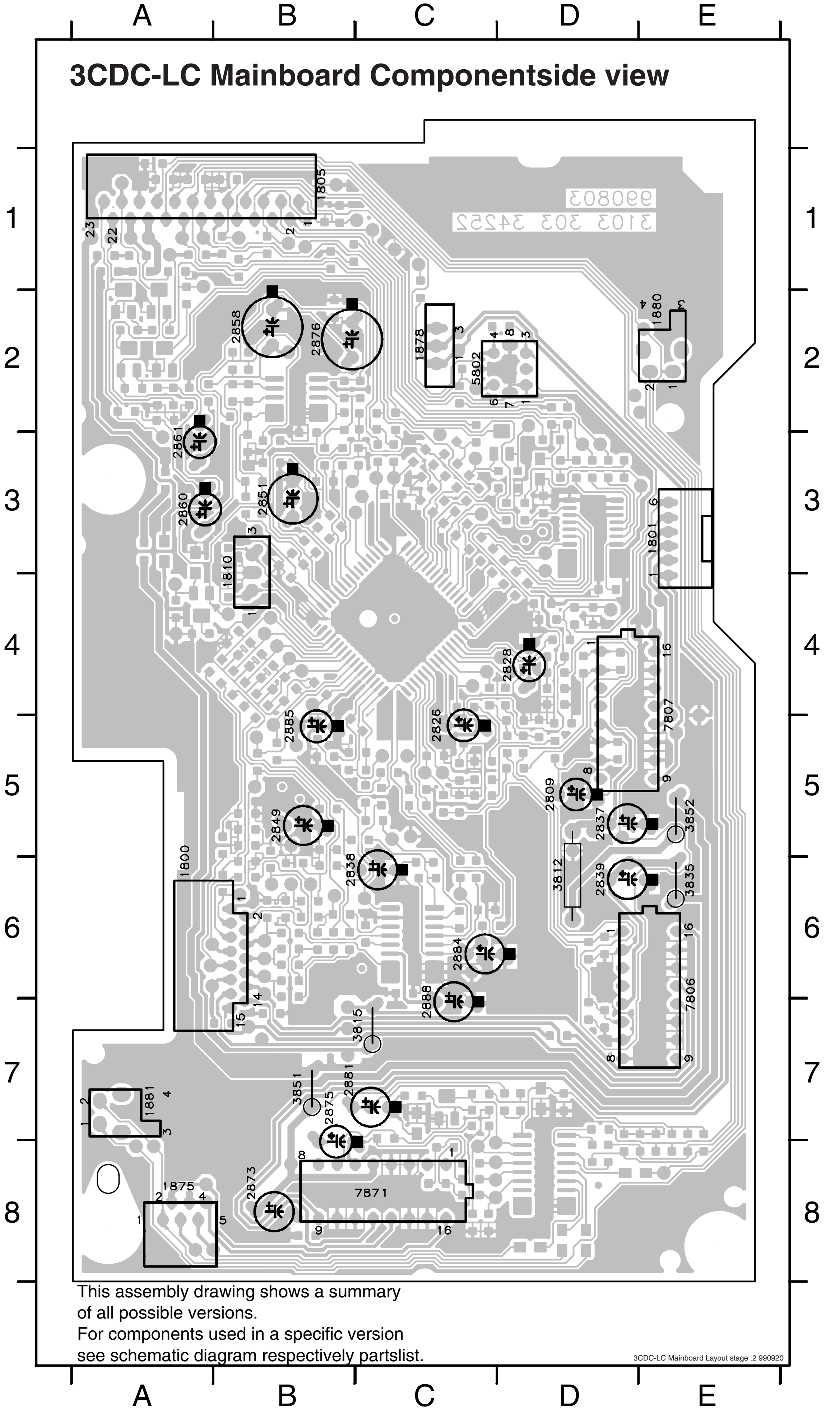


This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

Mapping

Copperside		3751	B2	3889	D3	Componentside	
2800	B6	3770	C3	3890	D8	1800	A6
2801	B4	3771	A2	3891	D8	1801	E3
2802	B6	3772	A2	3892	D3	1805	B1
2803	B4	3780	C3	3893	D7	1810	B3
2805	B4	3781	C2	3894	B5	1875	A8
2806	B4	3782	A2	3895	C5	1878	C2
2807	B6	3800	B6	3897	D6	1880	E2
2808	B4	3801	B5	3898	D7	1881	A7
2810	B5	3802	B6	3899	A4	2809	D5
2811	B4	3803	B4	4800	A1	2826	C5
2815	C6	3804	C3	4801	B1	2828	D4
2816	C3	3805	B4	4802	B1	2837	D5
2818	B3	3806	B4	4803	D2	2838	C6
2822	C5	3807	B4	4804	A1	2839	D6
2823	C5	3808	B4	4805	A1	2849	B5
2824	C5	3809	D4	4806	A1	2851	B3
2825	B5	3811	B6	4807	A1	2858	B2
2829	C8	3814	B4	4808	A1	2860	A3
2830	B3	3819	C3	4809	A2	2861	A3
2831	C2	3820	B6	4810	B2	2873	B8
2832	B3	3821	B6	4811	D6	2875	B7
2833	B3	3822	B6	4812	D6	2876	B2
2834	B4	3823	C6	4813	B1	2881	C7
2835	D5	3824	C6	4814	B1	2884	C6
2840	E4	3825	C5	4815	B1	2885	B5
2841	D5	3826	C5	4816	B1	2888	C7
2842	D6	3827	B4	4817	C1	3812	D6
2844	D5	3828	D4	4818	C1	3815	C7
2850	C3	3831	D3	4819	C1	3835	E6
2852	D3	3832	C3	4820	B3	3851	B7
2853	D4	3833	B5	4821	D2	3852	E5
2854	D4	3834	B6	4822	A3	5802	D2
2855	B5	3837	D4	4823	A3	7806	E6
2856	C3	3838	D4	4824	A3	7807	E5
2857	D5	3839	D5	4825	C2	7871	C8
2859	C5	3840	C5	4826	C3		
2862	B3	3841	D4	4827	B1		
2863	B3	3842	D4	4828	D3		
2864	D4	3843	D5	4829	D2		
2865	C2	3844	D6	4830	D5		
2867	B2	3845	D4	4831	B8		
2869	B6	3846	D5	4832	D4		
2872	D7	3847	D7	4833	C5		
2877	E8	3848	C4	4834	B5		
2878	E8	3849	D5	4835	C6		
2879	D5	3850	E5	4836	B6		
2882	C2	3853	B5	4837	C5		
2887	B3	3854	A2	4838	C5		
2891	D7	3855	A2	4839	C5		
2892	C6	3856	B5	4840	C6		
2893	E8	3857	B5	4841	D7		
3700	D4	3858	A2	4842	C5		
3705	E3	3859	A2	4843	C6		
3706	D3	3860	B2	4844	C6		
3707	D3	3861	B3	4845	B7		
3708	D3	3862	B3	4846	B6		
3709	C3	3863	D4	4847	B6		
3711	D3	3864	B2	4848	B7		
3712	C1	3866	C6	4849	B1		
3713	C7	3867	B3	4876	A3		
3714	D7	3868	C2	6871	E8		
3715	D7	3869	B6	6872	D8		
3716	D4	3870	B6	6873	D8		
3717	D4	3871	E8	6874	C7		
3718	D3	3872	C2	6875	D7		
3727	C3	3873	C3	6876	A3		
3728	C3	3874	C2	6877	B3		
3730	C3	3875	D3	6878	D8		
3731	D3	3876	D3	6879	D3		
3732	D3	3877	E8	7801	C6		
3733	D3	3878	A1	7805	B2		
3734	D4	3879	C8	7812	C7		
3735	C5	3880	C7	7850	A2		
3736	C5	3881	D7	7851	A2		
3740	B3	3882	D8	7860	A2		
3741	B3	3883	C8	7861	A2		
3742	B3	3884	C8	7873	D8		
3743	C3	3885	C8	7874	D3		
3744	B2	3886	D8	7875	B4		
3746	C2	3887	D7	7876	D3		
3750	B2	3888	E8	7877	C4		

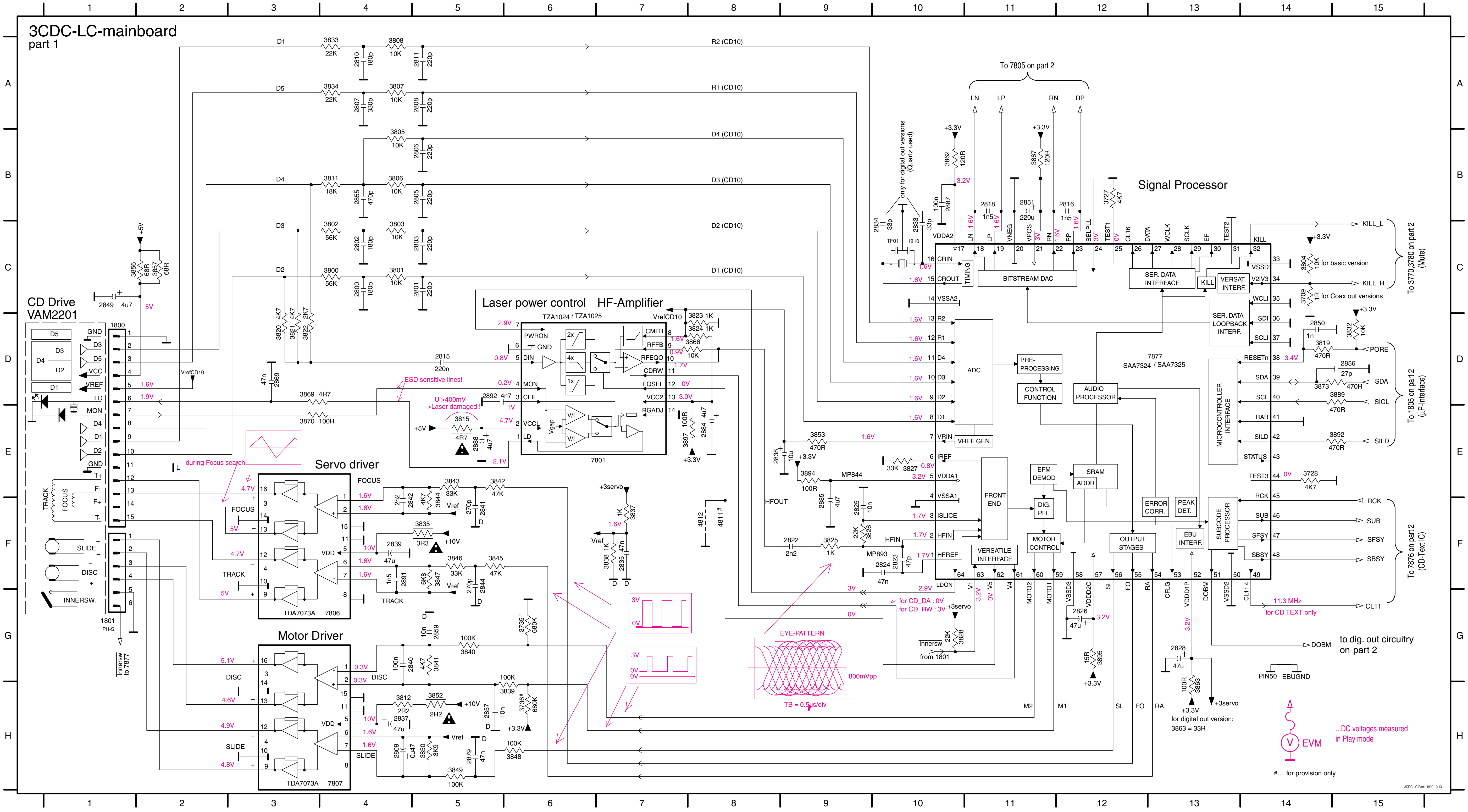
3CDC-LC Mainboard Componentside view



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

1800 D1
1801 G1
1810 C10
2800 C4
2801 C5
2802 C4
2803 C5
2805 B5
2806 B5
2807 A4
2808 A5
2809 H4
2810 A4
2811 A5
2815 D5
2816 B12
2818 B11
2822 F9
2823 F10
2824 F10
2825 F9
2826 G12
2828 G13
2833 C10
2834 C10
2835 F7
2837 H4
2838 E8
2839 F4
2840 G4
2841 F5
2842 F5
2844 F5
2849 C1
2850 D14
2851 B11
2855 B4
2856 D15
2857 H5
2859 G5
2869 D3
2879 H5
2884 E8
2885 F9
2887 B10
2888 E5
2891 F4
2892 D5
3709 C14
3727 B12
3728 E14
3735 G6
3736 H6
3800 C4
3801 C4
3802 C4
3803 C4
3804 C14
3805 B4
3806 B4
3807 A4
3808 A4
3811 B4
3812 H4
3815 E5
3819 D14
3820 D3
3821 D3
3822 D3
3823 D8
3824 D8
3825 F9
3826 F9
3827 E10
3828 G10
3832 D15
3833 A4
3834 A4
3835 F5
3837 F7
3838 F7
3839 H6
3840 G5
3841 G5
3842 E5
3843 E5
3844 F5
3845 F5
3846 F5
3847 F5
3848 H6
3849 H5
3850 H5
3852 H5
3853 E9
3856 C1
3857 C2
3862 B10
3863 H13
3866 D8
3867 B11
3869 D3
3870 E3
3873 D14
3889 D15
3892 E15
3894 E9
3895 G12
3897 E7
4811 F8
4812 F8
7801 E7
7806 G4
7807 H4
7877 D12
MP713 C5
MP715 C5
MP716 A5
MP717 A5
MP729 B5
MP730 B5
MP731 B13
MP743 D2
MP744 D2
MP745 E2
MP800 E3
MP802 B15
MP809 E10
MP812 F2
MP813 C3
MP814 F2
MP815 C3
MP816 A3
MP817 A3
MP818 D3
MP819 G9
MP820 F8
MP821 D15
MP827 B10
MP828 G9
MP829 B3
MP837 E3
MP838 G6
MP839 G6
MP840 E6
MP841 F6
MP842 H6
MP843 F6
MP844 E9
MP845 F4
MP846 G1
MP847 G2
MP848 E2
MP849 F2
MP850 F2
MP851 E2
MP852 F2
MP853 F2
MP855 E10
MP858 F9
MP859 F10
MP860 C2
MP861 E8
MP870 D8
MP872 C15
MP873 H4
MP875 G13
MP877 E4
MP878 B13
MP879 B11
MP883 E5
MP884 E5
MP893 F10
MP895 E14
MP896 B12

3CDC-LC-mainboard
part 1



1
2
3
4
5
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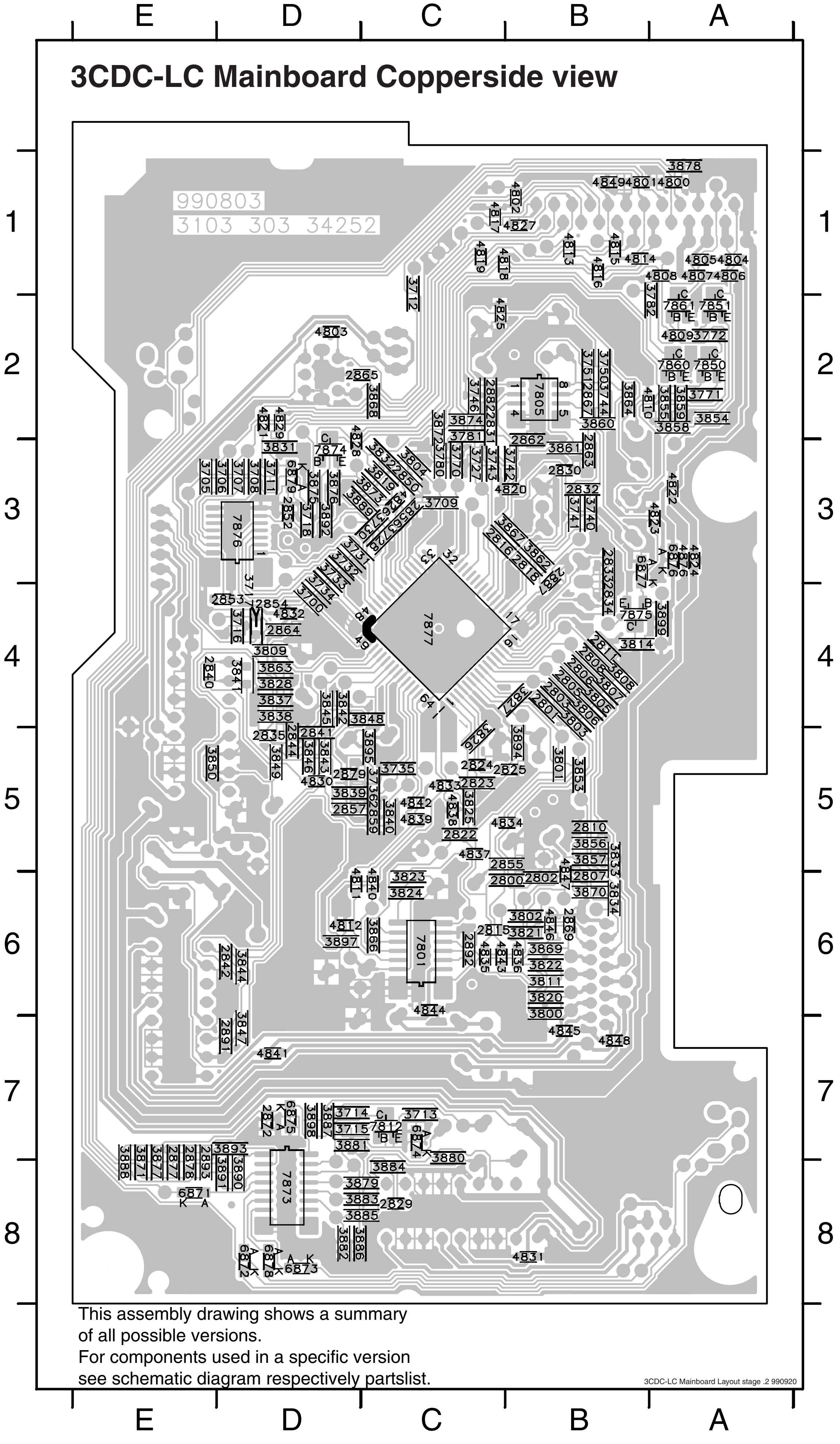
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
CD Drive
VAM2201
1800
1801
PH-S
D5
D4
D3
D2
D1
GND
VCC
VREF
LD
MON
T+
F-
F+
T-
TRACK
FOCUS
SLIDE
DISC
INNERSW.
Innersw
to 7877
+5V
3856 68R
3857 68R
2849 4u7
5V
1.6V
1.9V
VrefCD10
D1
D5
D4
D3
D2
3833 22K
3834 22K
3811 18K
3802 56K
3800 56K
3808 10K
3807 10K
3805 10K
3806 10K
3803 10K
3801 10K
2810 180p
2807 330p
2855 470p
2802 180p
2800 180p
2811 220p
2808 220p
2806 220p
2805 220p
2803 220p
2801 220p
R2 (CD10)
R1 (CD10)
D4 (CD10)
D3 (CD10)
D2 (CD10)
D1 (CD10)
3820 4K7
3821 4K7
3822 2K7
47n 2869
3869 4R7
3870 100R
2815 220n
0.8V
0.2V
ESD sensitive lines!
U >400mV
->Laser damaged !
2892 4n7
1V
3815 4R7
+5V
2888 4u7
4.7V
2.1V
Laser power control
HF-Amplifier
TZA1024 / TZA1025
2.9V
PWRON
GND
DIN
MON
CFIL
VCCL
LD
2x
4x
1x
Vgap
V/I
CMFB
RFFB
RFEQO
CDRW
EQSEL
VCC2
RGADJ
VrefCD10
3823 1K
3824 1K
3866 10K
1.6V
0.9V
1.7V
0V
3.0V
3897 100R
2884 4u7
+3.3V
7801
during Focus search
Servo driver
FOCUS
TRACK
4.7V
5V
VDD
10V
1.6V
3843 33K
3842 47K
3844 4K7
2842 2n2
2841 270p
Vref
3835 3R3
+10V
2839 47u
3846 33K
3845 47K
2891 1n5
3847 6K8
2844 270p
TDA7073A
7806
Motor Driver
DISC
SLIDE
5.1V
4.6V
4.9V
4.8V
0.3V
2840 100n
3841 4K7
3840 100K
2859 10n
3839 100K
3812 2R2
3852 2R2
2837 47u
2857 10n
2809 0u47
3850 3K9
2879 47n
3849 100K
3848 100K
3735# 680K
3736# 680K
TDA7073A
7807
+3servo
3837 1K
3838 1K
2835 47n
Vref
4812 #
4811 #
3V
0V
HFOUT
2822 2n2
3825 1K
MP893
2824 47n
2823 47p
HFIN
2838 10u
3853 470R
1.6V
3894 100R
2885 4u7
MP844
2825 10n
3826 22K
3827 33K
EYE-PATTERN
800mVpp
TB = 0.5µs/div
only for digital out versions
(Quartz used)
2834 33p
2833 33p
TF01
1810
2887 100n
+3.3V
3862 120R
3.2V
To 7805 on part 2
LN
LP
RN
RP
2818 1n5
2851 220u
2816 1n5
3867 120R
3727 4K7
Signal Processor
VDDA2
CRIN
CROUT
VSSA2
R2
R1
D4
D3
D2
D1
VRIN
IREF
VDDA1
VSSA1
ISLICE
HFIN
HFREF
TIMING
BITSTREAM DAC
ADC
VREF GEN.
PRE-
PROCESSING
CONTROL
FUNCTION
AUDIO
PROCESSOR
FRONT
END
EFM
DEMOD
SRAM
ADDR
DIG.
PLL
MOTOR
CONTROL
VERSATILE
INTERFACE
ERROR
CORR.
PEAK
DET.
OUTPUT
STAGES
EBU
INTERF.
SUBCODE
PROCESSOR
MICROCONTROLLER
INTERFACE
SER. DATA
INTERFACE
KILL
VERSAT.
INTERF.
SER. DATA
LOOPBACK
INTERF.
7877
SAA7324 / SAA7325
VNEG
VPOS
SELPLL
TEST1
CL16
DATA
WCLK
SCLK
EF
TEST2
KILL
VSSD
V2V3
WCLI
SDI
SCLI
RESETn
SDA
SCL
RAB
SILD
STATUS
TEST3
RCK
SUB
SFSY
SBSY
LDON
V1
V5
V4
MOTO2
MOTO1
VSSD3
VDDD2C
SL
FO
RA
CFLG
VDDD1P
DOBM
VSSD2
CL11/4
KILL_L
KILL_R
3804 10K for basic version
3709 1R for Coax out versions
To 3770,3780 on part 2
(Mute)
2850 1n
3819 470R
3832 10K
PORE
3.4V
2856 27p
3873 470R
3889 470R
3892 470R
SDA
SICL
SILD
To 1805 on part 2
(µP-Interface)
3728 4K7
RCK
SUB
SFSY
SBSY
To 7876 on part 2
(CD-Text IC)
11.3 MHz
for CD TEXT only
CL11
DOBM
to dig. out circuitry
on part 2
for CD_DA : 0V
for CD_RW : 3V
3828 22K
Innersw
from 1801
2826 47u
3895 15R
2828 47u
3863 100R
for digital out version:
3863 = 33R
+3servo
PIN50
EBUGND
...DC voltages measured
in Play mode
EVM
#.... for provision only
M2
M1
3CDC-LC Part1 1999 10 13

CS 53 306

3CDC-LC Mainboard Copperside view



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

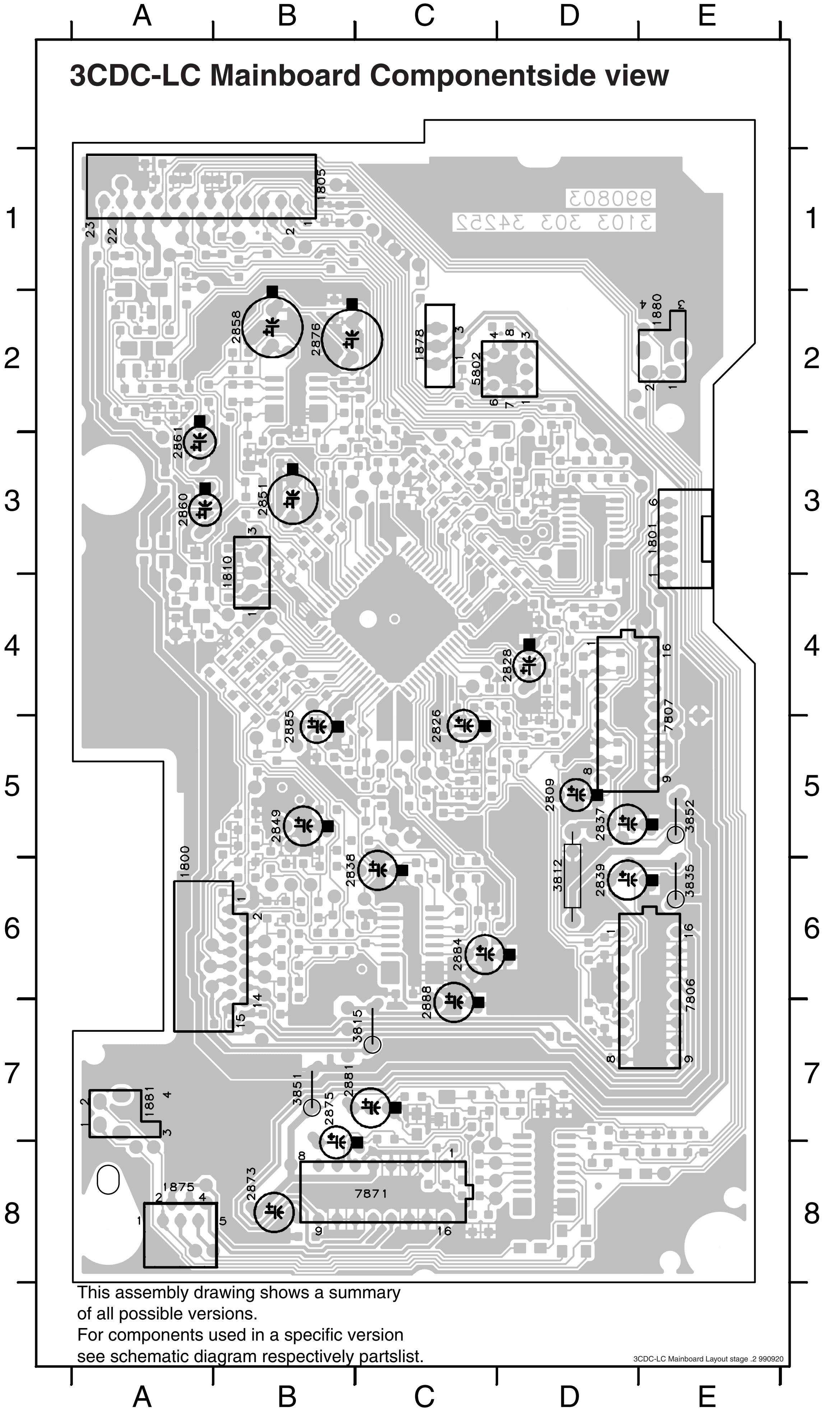
3CDC-LC Mainboard Layout stage .2 990920

Mapping

Copperside	
2800	B6
2801	B4
2802	B6
2803	B4
2805	B4
2806	B4
2807	B6
2808	B4
2810	B5
2811	B4
2815	C6
2816	C3
2818	B3
2822	C5
2823	C5
2824	C5
2825	B5
2829	C8
2830	B3
2831	C2
2832	B3
2833	B3
2834	B4
2835	D5
2840	E4
2841	D5
2842	D6
2844	D5
2850	C3
2852	D3
2853	D4
2854	D4
2855	B5
2856	C3
2857	D5
2859	C5
2862	B3
2863	B3
2864	D4
2865	C2
2867	B2
2869	B6
2872	D7
2877	E8
2878	E8
2879	D5
2882	C2
2887	B3
2891	D7
2892	C6
2893	E8
3700	D4
3705	E3
3706	D3
3707	D3
3708	D3
3709	C3
3711	D3
3712	C1
3713	C7
3714	D7
3715	D7
3716	D4
3717	D4
3718	D3
3727	C3
3728	C3
3730	C3
3731	D3
3732	D3
3733	D3
3734	D4
3735	C5
3736	C5
3740	B3
3741	B3
3742	B3
3743	C3
3744	B2
3746	C2
3750	B2
3751	B2
3770	C3
3771	A2
3772	A2
3780	C3
3781	C2
3782	A2
3800	B6
3801	B5
3802	B6
3803	B4
3804	C3
3805	B4
3806	B4
3807	B4
3808	B4
3809	D4
3811	B6
3814	B4
3819	C3
3820	B6
3821	B6
3822	B6
3823	C6
3824	C6
3825	C5
3826	C5
3827	B4
3828	D4
3831	D3
3832	C3
3833	B5
3834	B6
3837	D4
3838	D4
3839	D5
3840	C5
3841	D4
3842	D4
3843	D5
3844	D6
3845	D4
3846	D5
3847	D7
3848	C4
3849	D5
3850	E5
3853	B5
3854	A2
3855	A2
3856	B5
3857	B5
3858	A2
3859	A2
3860	B2
3861	B3
3862	B3
3863	D4
3864	B2
3866	C6
3867	B3
3868	C2
3869	B6
3870	B6
3871	E8
3872	C2
3873	C3
3874	C2
3875	D3
3876	D3
3877	E8
3878	A1
3879	C8
3880	C7
3881	D7
3882	D8
3883	C8
3884	C8
3885	C8
3886	D8
3887	D7
3888	E8
3889	D3
3890	D8
3891	D8
3892	D3
3893	D7
3894	B5
3895	C5
3897	D6
3898	D7
3899	A4
4800	A1
4801	B1
4802	B1
4803	D2
4804	A1
4805	A1
4806	A1
4807	A1
4808	A1
4809	A2
4810	B2
4811	D6
4812	D6
4813	B1
4814	B1
4815	B1
4816	B1
4817	C1
4818	C1
4819	C1
4820	B3
4821	D2
4822	A3
4823	A3
4824	A3
4825	C2
4826	C3
4827	B1
4828	D3
4829	D2
4830	D5
4831	B8
4832	D4
4833	C5
4834	B5
4835	C6
4836	B6
4837	C5
4838	C5
4839	C5
4840	C6
4841	D7
4842	C5
4843	C6
4844	C6
4845	B7
4846	B6
4847	B6
4848	B7
4849	B1
4876	A3
6871	E8
6872	D8
6873	D8
6874	C7
6875	D7
6876	A3
6877	B3
6878	D8
6879	D3
7801	C6
7805	B2
7812	C7
7850	A2
7851	A2
7860	A2
7861	A2
7873	D8
7874	D3
7875	B4
7876	D3
7877	C4

Componentside	
1800	A6
1801	E3
1805	B1
1810	B3
1875	A8
1878	C2
1880	E2
1881	A7
2809	D5
2826	C5
2828	D4
2837	D5
2838	C6
2839	D6
2849	B5
2851	B3
2858	B2
2860	A3
2861	A3
2873	B8
2875	B7
2876	B2
2881	C7
2884	C6
2885	B5
2888	C7
3812	D6
3815	C7
3835	E6
3851	B7
3852	E5
5802	D2
7806	E6
7807	E5
7871	C8

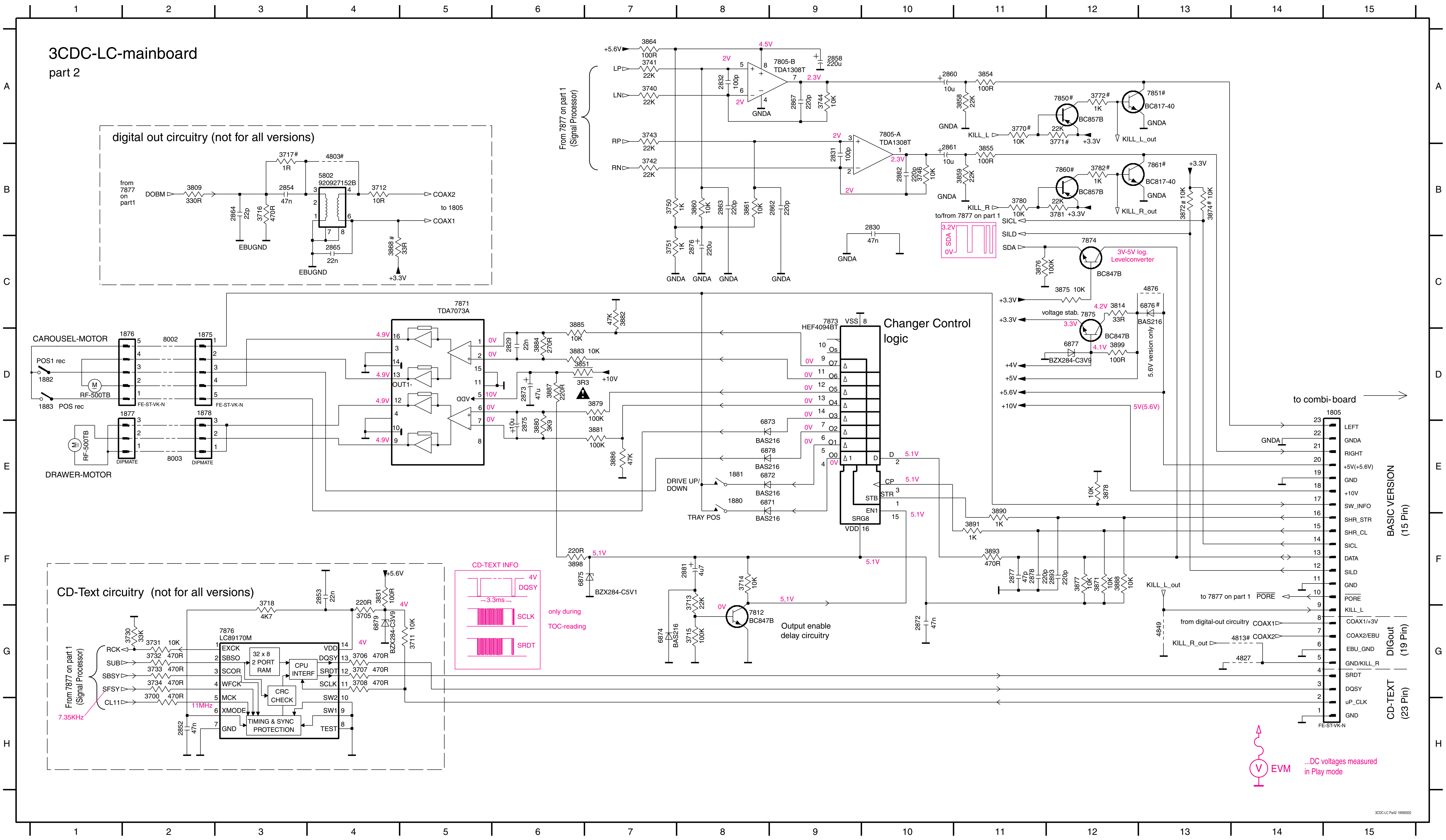
3CDC-LC Mainboard Componentside view



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LC Mainboard Layout stage .2 990920

1805	D15
1875	D2
1878	D2
1880	E8
1881	E8
2829	D6
2830	B10
2831	B9
2832	A8
2852	H2
2853	F4
2854	B3
2858	A10
2860	A10
2861	B10
2862	B9
2863	B8
2864	B3
2865	C4
2867	A9
2872	G10
2873	D6
2875	E6
2876	C8
2877	F11
2878	F11
2881	F8
2882	B10
2893	F12
3700	H2
3705	G4
3706	G4
3707	G4
3708	G4
3711	G5
3712	B4
3713	F8
3714	F8
3715	G8
3716	B3
3717	B3
3718	G3
3730	G2
3731	G2
3732	G2
3733	G2
3734	G2
3740	A7
3741	A7
3742	B7
3743	A7
3744	A9
3746	B10
3750	B7
3751	C7
3770	A11
3771	A12
3772	A12
3780	B11
3781	B12
3782	B12
3809	B2
3814	C12
3831	F4
3851	D6
3854	A11
3855	B11
3858	A11
3859	B11
3860	B8
3861	B8
3864	A7
3868	C4
3871	F12
3872	B13
3874	B13
3875	C12
3876	C11
3877	F12
3878	E12
3879	D7
3880	E6
3881	E7
3882	C7
3883	D6
3884	D6
3885	C6
3886	E7
3887	D6
3888	F12
3890	F11
3891	F11
3893	F11
3898	F6
3899	D12
4803	B4
4813	G14
4827	G14
4849	G13
4876	C13
5802	B4
6871	E8
6872	E8
6873	E8
6874	G7
6875	F6
6876	C13
6877	D12
6878	E8
6879	G4
7805-A	A10
7805-B	A9
7812	G8
7850	A12
7851	A13
7860	B12
7861	B13
7871	C5
7873	C9
7874	C12
7875	C12
7876	G3
MP721	C8
MP722	E8
MP723	C8
MP724	D8
MP725	D8
MP726	D8
MP740	H14
MP741	G14
MP742	G14
MP801	D12
MP803	F10
MP804	G14
MP805	E13
MP806	F13
MP807	F14
MP808	E13
MP810	F13
MP811	F13
MP822	E3
MP823	D3
MP824	D4
MP825	D4
MP830	A9
MP832	G9
MP833	F13
MP834	G14
MP835	F14
MP854	A13
MP856	E14
MP857	B13
MP862	G13
MP863	C11
MP865	D11
MP866	E8
MP867	E8
MP868	F8
MP869	C12
MP871	D6
MP874	D12
MP881	G2
MP882	G2
MP886	G3
MP887	H5
MP888	G5
MP889	G5
MP890	B3
MP891	B5
MP892	B5
MP897	D12
MP898	D13
MP899	E14

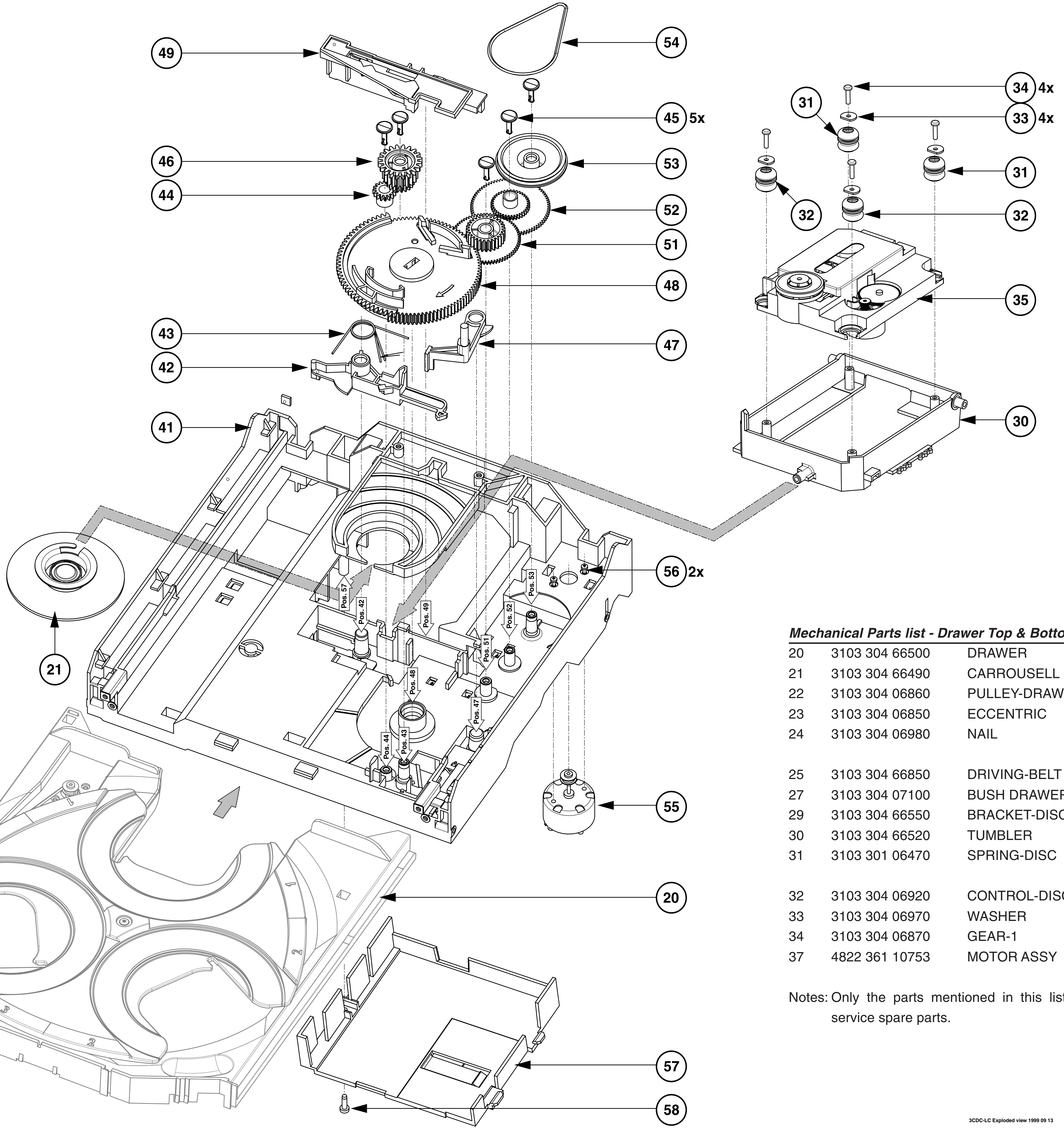

3CDC-LC-mainboard
part 2
digital out circuitry (not for all versions)
from 7877 on part1
DOBM
3809 330R
3717# 1R
4803#
5802 920927152B
2854 47n
3712 10R
COAX2
to 1805
COAX1
2864 22p
3716 470R
EBUGND
2865 22n
3868 # 33R
+3.3V
CD-Text circuitry (not for all versions)
From 7877 on part 1 (Signal Processor)
RCK
SUB
SBSY
SFSY
CL11
7.35KHz
11MHz
7876 LC89170M
EXCK
SBSO
SCOR
WFCK
MCK
XMODE
GND
32 x 8 2 PORT RAM
CPU INTERF
CRC CHECK
TIMING & SYNC PROTECTION
VDD
DQSY
SRDT
SCLK
SW2
SW1
TEST
3718 4K7
2853 22n
3831 100R
3705 220R
6879 BZX284-C3V9
3711 10K
+5.6V
4V
CD-TEXT INFO
DQSY
SCLK
SRDT
3.3ms
only during TOC-reading
CAROUSEL-MOTOR
POS1 rec
POS rec
RF-500TB
DRAWER-MOTOR
1876
1875
1877
1878
8002
8003
FE-ST-VK-N
DIPMATE
7871 TDA7073A
OUT1-
VDD
4.9V
0V
10V
3885 10K
3882 47K
3883 10K
3851
3R3
+10V
3879 100K
3881 100K
3886 47K
3898 220R
6875 BZX284-C5V1
5,1V
From 7877 on part 1 (Signal Processor)
LP
LN
RP
RN
3864 100R
3741 22K
3740 22K
3743 22K
3742 22K
7805-B TDA1308T
7805-A TDA1308T
4.5V
2V
2.3V
2858 220u
GNDA
2860 10u
3854 100R
2861 10u
3855 100R
7850# BC857B
7851# BC817-40
7860# BC857B
7861# BC817-40
KILL_L
KILL_R
KILL_L_out
KILL_R_out
+3.3V
to/from 7877 on part 1
SICL
SILD
SDA
3.2V
0V
7874 BC847B
3V-5V log. Levelconverter
2830 47n
7873 HEF4094BT
Changer Control logic
VSS
VDD
STB
CP
D
EN1
SRG8
O0
O1
O2
O3
O4
O5
O6
O7
Os
DRIVE UP/DOWN
TRAY POS
1880
1881
6873 BAS216
6878 BAS216
6872 BAS216
6871 BAS216
5.1V
7875
voltage stab.
4.2V
3.3V
4.1V
3814 33R
6876# BAS216
4876
6877 BZX284-C3V9
3899 100R
BC847B
5.6V version only
+4V
+5V
+5.6V
+10V
5V(5.6V)
3890 1K
3891 1K
3893 470R
7812 BC847B
Output enable delay circuitry
0V
to combi-board
1805
LEFT
GNDA
RIGHT
+5V(+5.6V)
GND
+10V
SW_INFO
SHR_STR
SHR_CL
SICL
DATA
SILD
GND
PORE
KILL_L
COAX1/+3V
COAX2/EBU
EBU_GND
GND/KILL_R
SRDT
DQSY
uP_CLK
GND
BASIC VERSION (15 Pin)
DIGout (19 Pin)
CD-TEXT (23 Pin)
to 7877 on part 1
from digital-out circuitry
4813#
4827
4849
EVM
...DC voltages measured in Play mode

EXPLODED VIEW (3CDC-LC MODULE)

Mechanical Parts List - 3CDC-LC Module

21	314011758650	CLAMPER ASSY-VAM
30	310330466560	SUPPORT
31	482252910431	DAMPER - RUBBER (25DEG)
32	482252910431	DAMPER - RUBBER (25DEG)
33	310330406970	WASHER
35	482269110772	VAM2201/01
41	310330466480	FRAME
42	310330466540	BRACKET-GUIDING
43	310330106460	SPRING-GUIDING
44	310330406890	GEAR-3
45	310330406980	NAIL
46	310330406880	GEAR-2
47	310330466530	BRACKET-LOAD
48	310330406910	CAM
49	310330466510	GUIDING
51	310330406900	GEAR-4
52	310330406870	GEAR-1
53	310330406960	PULLEY-FRAME
54	310330466910	DRIVING-BELT-DRAWER
55	482236110753	MOTOR ASSY
56	482250212548	SCREW M2,6X2,9
57	310330468890	COVER-VAM
59	482246612146	RUBBER

Notes: Only the parts mentioned in this list are normal service spare parts.

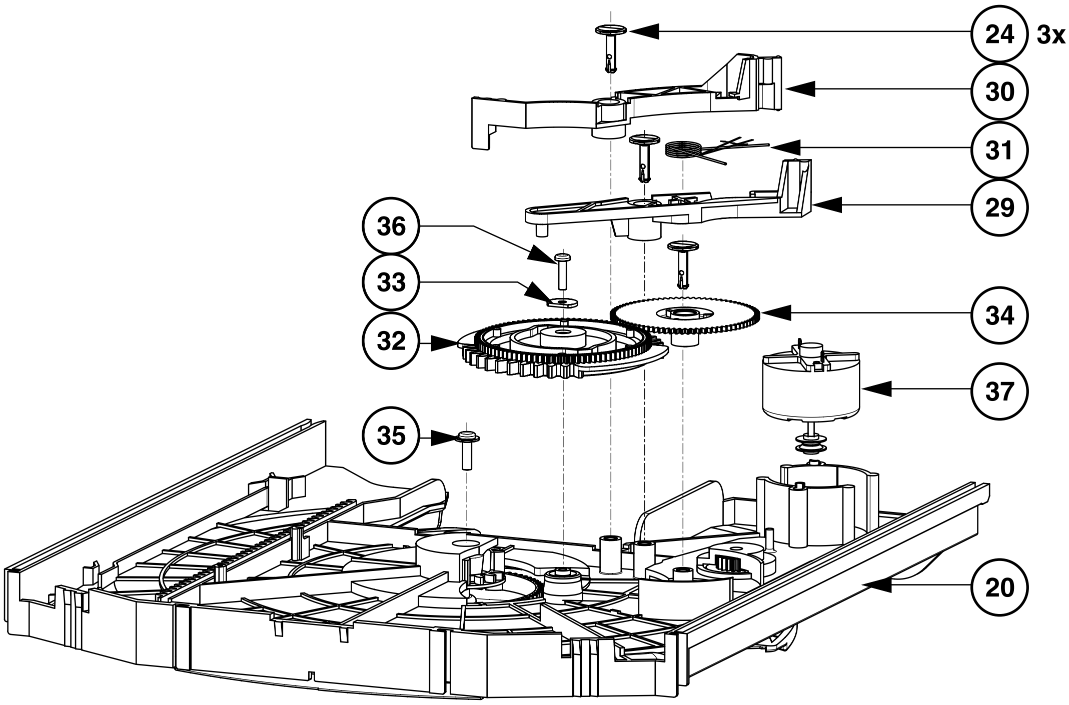

49
54
34 4x
31
45 5x
33 4x
46
53
31
44
52
32
32
51
35
48
43
47
42
30
41
56 2x
Pos. 57
Pos. 42
Pos. 49
Pos. 53
Pos. 52
Pos. 51
Pos. 48
Pos. 47
Pos. 44
Pos. 43
21
55
20
57
58
3CDC-LC Exploded view 1999 09 13

Mechanical Parts list - Drawer Top & Bottom view

20	3103 304 66500	DRAWER
21	3103 304 66490	CARROUSELL
22	3103 304 06860	PULLEY-DRAWER
23	3103 304 06850	ECCENTRIC
24	3103 304 06980	NAIL
25	3103 304 66850	DRIVING-BELT
27	3103 304 07100	BUSH DRAWER
29	3103 304 66550	BRACKET-DISC
30	3103 304 66520	TUMBLER
31	3103 301 06470	SPRING-DISC
32	3103 304 06920	CONTROL-DISC
33	3103 304 06970	WASHER
34	3103 304 06870	GEAR-1
37	4822 361 10753	MOTOR ASSY

Notes: Only the parts mentioned in this list are normal service spare parts.

Drawer bottom view


24
3x
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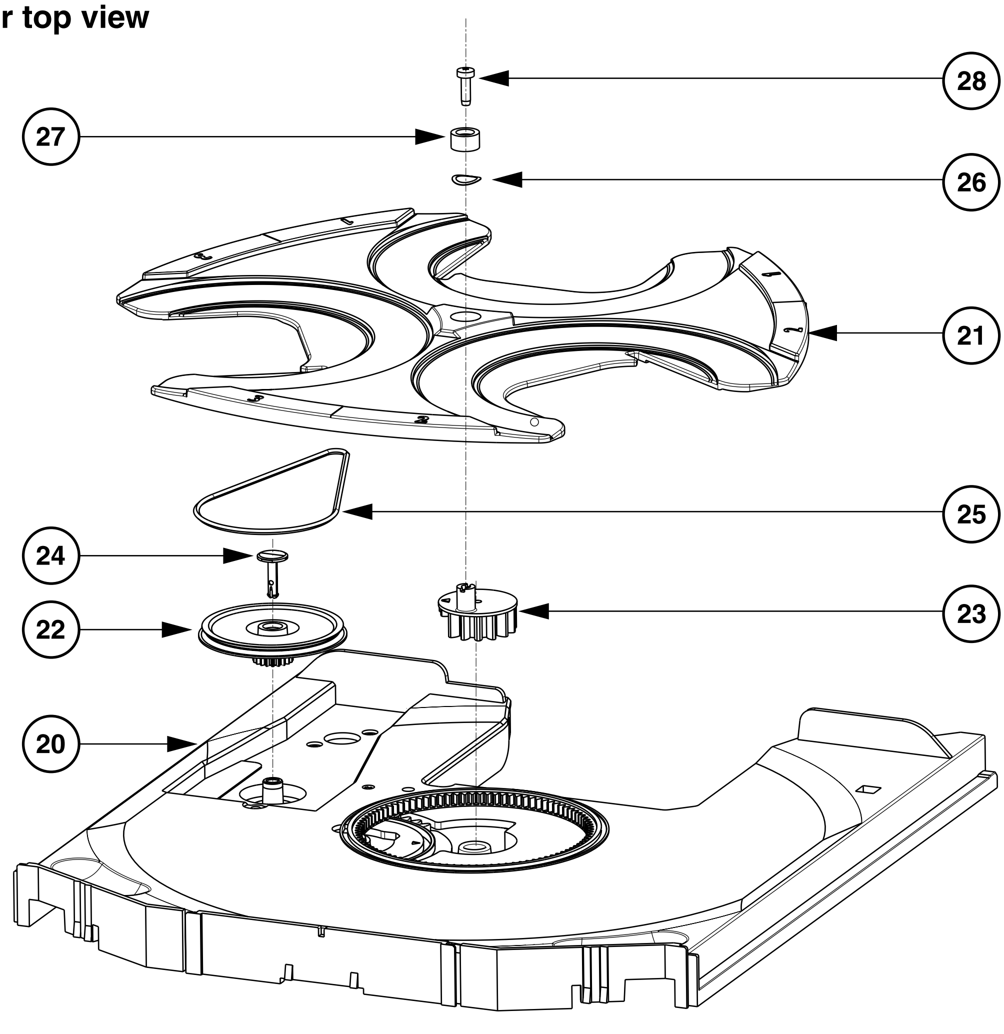
Drawer top view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3CDC-LC Drawer assy 1999 09 13

ELECTRICAL PARTS LIST - 3CDC-LC MODULE

MISCELLANEOUS

1800	482226510925	Flex Foil Connector 15P
1805	482226510979	Flex Foil Connector 15P
1805	482226511545	Flex Foil Connector 19P
1805	482226511182	Flex Foil Connector 23P
1810	482224210849	RES XTL 8MHz4672
1810	482224273557	RES CER 8MHz467
1875	482226710958	Flex Foil Connector 5P
1876	242202508332	Flex Foil Connector 5P
1880	482227613503	Switch
1881	482227613503	Switch
1882	482227613503	Switch
1883	482227613503	Switch
8002	310330891990	Flex Foil 5P 200mm
8005	310330891980	Flex Foil 15P 170mm

CAPACITORS

2800	482212610326	180pF 5% 63V
2801	482212233575	220pF 5% 63V
2802	482212610326	180pF 5% 63V
2803	482212233575	220pF 5% 63V
2805	482212233575	220pF 5% 63V
2806	482212233575	220pF 5% 63V
2807	532212231863	330pF 5% 63V
2808	482212233575	220pF 5% 63V
2809	532212441948	470nF 20% 50V
2810	482212610326	180pF 5% 63V
2811	482212233575	220pF 5% 63V
2815	482212614076	220nF +80/-20% 25V
2816	482212613344	1,5nF 5% 63V
2818	482212613344	1,5nF 5% 63V
2822	222286115222	2,2nF 5% 50V
2823	482212613692	47pF 1% 63V
2824	482212613751	47nF 10% 63V
2825	482212233177	10nF 20% 50V
2826	482212412362	47µF 20% 4V
2828	482212412362	47µF 20% 4V
2829	532212232654	22nF 10% 63V
2830	482212613751	47nF 10% 63V
2831	532212232531	100pF 5% 50V
2832	532212232531	100pF 5% 50V
2833	532212232659	33pF 5% 50V
2834	532212232659	33pF 5% 50V
2835	482212613751	47nF 10% 63V
2837	482212440433	47µF 20% 25V
2838	482212440248	10µF 20% 63V
2839	482212440433	47µF 20% 25V
2840	482212614585	100nF 10% 50V
2841	482212233216	270pF 5% 50V
2842	482212233127	2,2nF 10% 63V
2844	482212233216	270pF 5% 50V
2849	482212440769	4,7µF 20% 100V
2850	532212231647	1nF 10% 63V
2851	482212442383	220µF 20% 4V
2852	482212613751	47nF 10% 63V
2853	532212232654	22nF 10% 63V
2854	482212613751	47nF 10% 63V
2855	532212234099	470pF 10% 63V
2856	482212613691	27pF 1% 63V
2857	482212233177	10nF 20% 50V
2858	482212412245	220µF 20%
2859	482212233177	10nF 20% 50V
2860	482212411947	10µF 20% 16V
2861	482212411947	10µF 20% 16V
2862	482212233575	220pF 5% 63V
2863	482212233575	220pF 5% 63V
2864	532212232658	22pF 5% 50V
2865	532212232654	22nF 10% 63V
2867	482212233575	220pF 5% 63V
2869	482212613751	47nF 10% 63V
2872	482212613751	47nF 10% 63V
2873	482212480231	47µF 20% 16V
2875	482212411947	10µF 20% 16V
2876	482212412245	220µF 20%
2877	482212613692	47pF 1% 63V
2878	482212233575	220pF 5% 63V
2879	482212613751	47nF 10% 63V
2881	482212440769	4,7µF 20% 100V
2882	482212233575	220pF 5% 63V
2884	482212440769	4,7µF 20% 100V
2885	482212440769	4,7µF 20% 100V
2887	482212614585	100nF 10% 50V
2888	482212440769	4,7µF 20% 100V
2891	532212231865	1,5nF 10% 63V
2892	532212610223	4,7nF 10% 63V
2893	482212233575	220pF 5% 63V

RESISTORS

3700	482205120471	470R 5% 0,1W
3705	482211711503	220R 1% 0,1W
3706	482205120471	470R 5% 0,1W
3707	482205120471	470R 5% 0,1W
3708	482205120471	470R 5% 0,1W
3709	482205120108	1R 5% 0,1W
3711	482211710833	10k 1% 0,1W
3712	482205120109	10R 5% 0,1W
3713	482205120223	22k 5% 0,1W
3714	482211710833	10k 1% 0,1W
3715	482211710837	100k 1% 0,1W
3716	482205120471	470R 5% 0,1W
3718	482205120472	4k7 5% 0,1W
3727	482205120472	4k7 5% 0,1W
3728	482205120472	4k7 5% 0,1W
3730	482205120333	33k 5% 0,1W
3731	482211710833	10k 1% 0,1W

ELECTRICAL PARTS LIST - 3CDC-LC MODULE

RESISTORS

3732	482205120471	470R 5% 0,1W
3733	482205120471	470R 5% 0,1W
3734	482205120471	470R 5% 0,1W
3740	482205120223	22k 5% 0,1W
3741	482205120223	22k 5% 0,1W
3742	482205120223	22k 5% 0,1W
3743	482205120223	22k 5% 0,1W
3744	482211710833	10k 1% 0,1W
3746	482211710833	10k 1% 0,1W
3750	482205110102	1k 2% 0,25W
3751	482205110102	1k 2% 0,25W
3800	482211711148	56k 1% 0,1W
3801	482211710833	10k 1% 0,1W
3802	482211711148	56k 1% 0,1W
3803	482211710833	10k 1% 0,1W
3804	482211710833	10k 1% 0,1W
3805	482211710833	10k 1% 0,1W
3806	482211710833	10k 1% 0,1W
3807	482211710833	10k 1% 0,1W
3808	482211710833	10k 1% 0,1W
3809	482211713577	330R 1% 1,25W
3811	482211710965	18k 1% 0,1W
3812	482205310228	2R2 5% 1W
3814	482205120339	33R 5% 0,1W
3815	482205210478	⚠ 4R7 5% 0,33W
3819	482205120471	470R 5% 0,1W
3820	482205120472	4k7 5% 0,1W
3821	482205120472	4k7 5% 0,1W
3822	482211712955	2k7 1% 0,1W
3823	482205110102	1k 2% 0,25W
3824	482205110102	1k 2% 0,25W
3825	482205110102	1k 2% 0,25W
3826	482205120223	22k 5% 0,1W
3827	482205120333	33k 5% 0,1W
3828	482205120223	22k 5% 0,1W
3831	482205120101	100R 5% 0,1W
3832	482211710833	10k 1% 0,1W
3833	482205120223	22k 5% 0,1W
3834	482205120223	22k 5% 0,1W
3835	482205210338	⚠ 3R3 5% 0,33W
3837	482205110102	1k 2% 0,25W
3838	482205110102	1k 2% 0,25W
3839	482211710837	100k 1% 0,1W
3840	482211710837	100k 1% 0,1W
3841	482205120472	4k7 5% 0,1W
3842	482211710834	47k 1% 0,1W
3843	482205120333	33k 5% 0,1W
3844	482205120472	4k7 5% 0,1W
3845	482211710834	47k 1% 0,1W
3846	482205120333	33k 5% 0,1W
3847	482211711507	6k8 1% 0,1W
3848	482211710837	100k 1% 0,1W
3849	482211710837	100k 1% 0,1W
3850	482205120392	3k9 5% 0,1W
3851	482205210338	⚠ 3R3 5% 0,33W
3852	482205210228	⚠ 2R2 5% 0,33W
3853	482205120471	470R 5% 0,1W
3854	482205120101	100R 5% 0,1W
3855	482205120101	100R 5% 0,1W
3856	482211712521	68R 1% 0,1W
3857	482211712521	68R 1% 0,1W
3858	482205120223	22k 5% 0,1W
3859	482205120223	22k 5% 0,1W
3860	482211710833	10k 1% 0,1W
3861	482211710833	10k 1% 0,1W
3862	482205120121	120R 5% 0,1W
3863	482205120101	100R 5% 0,1W
3863	482205120339	33R 5% 0,1W
3864	482205120101	100R 5% 0,1W
3866	482211710833	10k 1% 0,1W
3867	482205120121	120R 5% 0,1W
3869	482205120478	4R7 5% 0,1W
3870	482205120101	100R 5% 0,1W
3871	482211710833	10k 1% 0,1W
3873	482205120471	470R 5% 0,1W
3875	482211710833	10k 1% 0,1W
3876	482211710837	100k 1% 0,1W
3877	482211710833	10k 1% 0,1W
3878	482211710833	10k 1% 0,1W
3879	482211710837	100k 1% 0,1W
3880	482205120392	3k9 5% 0,1W
3881	482211710837	100k 1% 0,1W
3882	482211710834	47k 1% 0,1W
3883	482211710833	10k 1% 0,1W
3884	482211711504	270R 1% 0,1W
3885	482211710833	10k 1% 0,1W
3886	482211710834	47k 1% 0,1W
3887	482211711503	220R 1% 0,1W
3888	482211710833	10k 1% 0,1W
3889	482205120471	470R 5% 0,1W
3890	482205110102	1k 2% 0,25W
3891	482205110102	1k 2% 0,25W
3892	482205120471	470R 5% 0,1W
3893	482205120471	470R 5% 0,1W
3894	482205120101	100R 5% 0,1W
3895	482205120159	15R 5% 0,1W
3897	482205120101	100R 5% 0,1W
3898	482211711503	220R 1% 0,1W
3899	482205120101	100R 5% 0,1W
4800	482205120008	0R Jumper 0805
4801	482205120008	0R Jumper 0805
4802	482205120008	0R Jumper 0805
4804	482205120008	0R Jumper 0805
4805	482205120008	0R Jumper 0805
4806	482205120008	0R Jumper 0805
4807	482205120008	0R Jumper 0805

ELECTRICAL PARTS LIST - 3CDC-LC MODULE

RESISTORS

4808	482205120008	0R Jumper 0805
4810	482205120008	0R Jumper 0805
4812	482205120008	0R Jumper 0805
4817	482205120008	0R Jumper 0805
4818	482205120008	0R Jumper 0805
4819	482205120008	0R Jumper 0805
4820	482205120008	0R Jumper 0805
4821	482205120008	0R Jumper 0805
4822	482205120008	0R Jumper 0805
4823	482205120008	0R Jumper 0805
4824	482205120008	0R Jumper 0805
4825	482205120008	0R Jumper 0805
4826	482205120008	0R Jumper 0805
4827	482205120008	0R Jumper 0805
4828	482205120008	0R Jumper 0805
4830	482205120008	0R Jumper 0805
4831	482205120008	0R Jumper 0805
4832	482205120008	0R Jumper 0805
4833	482205120008	0R Jumper 0805
4834	482205120008	0R Jumper 0805
4835	482205120008	0R Jumper 0805
4836	482205120008	0R Jumper 0805
4837	482205120008	0R Jumper 0805
4838	482205120008	0R Jumper 0805
4839	482205120008	0R Jumper 0805
4840	482205120008	0R Jumper 0805
4841	482205120008	0R Jumper 0805
4842	482205120008	0R Jumper 0805
4843	482205120008	0R Jumper 0805
4844	482205120008	0R Jumper 0805
4845	482205120008	0R Jumper 0805
4846	482205120008	0R Jumper 0805
4847	482205120008	0R Jumper 0805
4848	482205120008	0R Jumper 0805
4849	482205120008	0R Jumper 0805
4876	482205120008	0R Jumper 0805

COILS & FILTERS

5802	482215631058	100µH

DIODES

6871	482213083757	BAS216
6872	482213083757	BAS216
6873	482213083757	BAS216
6874	482213083757	BAS216
6875	482213011383	BZX284-C5V1
6877	482213011366	BZX284-C3V9
6878	482213083757	BAS216
6879	482213011366	BZX284-C3V9

TRANSISTORS & INTEGRATED CIRCUITS

7801	935262236118	IC SM TZA1025T/V2
7805	482220933165	TDA1308T/N1
7806	482220932852	TDA7073A/N2
7807	482220932852	TDA7073A/N2
7812	482213060511	BC847B
7871	482220932852	TDA7073A/N2
7873	532220911306	HEF4094BT
7874	482213060511	BC847B
7875	482213060511	BC847B
7876	482220916143	LC89170M
7877	482220917324	SAA7325H

Note: Only the parts mentioned in this list are normal service spare parts.

3CDC-LC-MB Module

(3 Disc Carousel Changer)

Note:
This module is mechanically the same as the 3CDC-LC Module.
All service information refers to Chapter 10 except the schematics, layouts & electrical parts list related to the CDC board.
The CDC board can be recognized by 12NC: 3103 303 34522 printed on the board.

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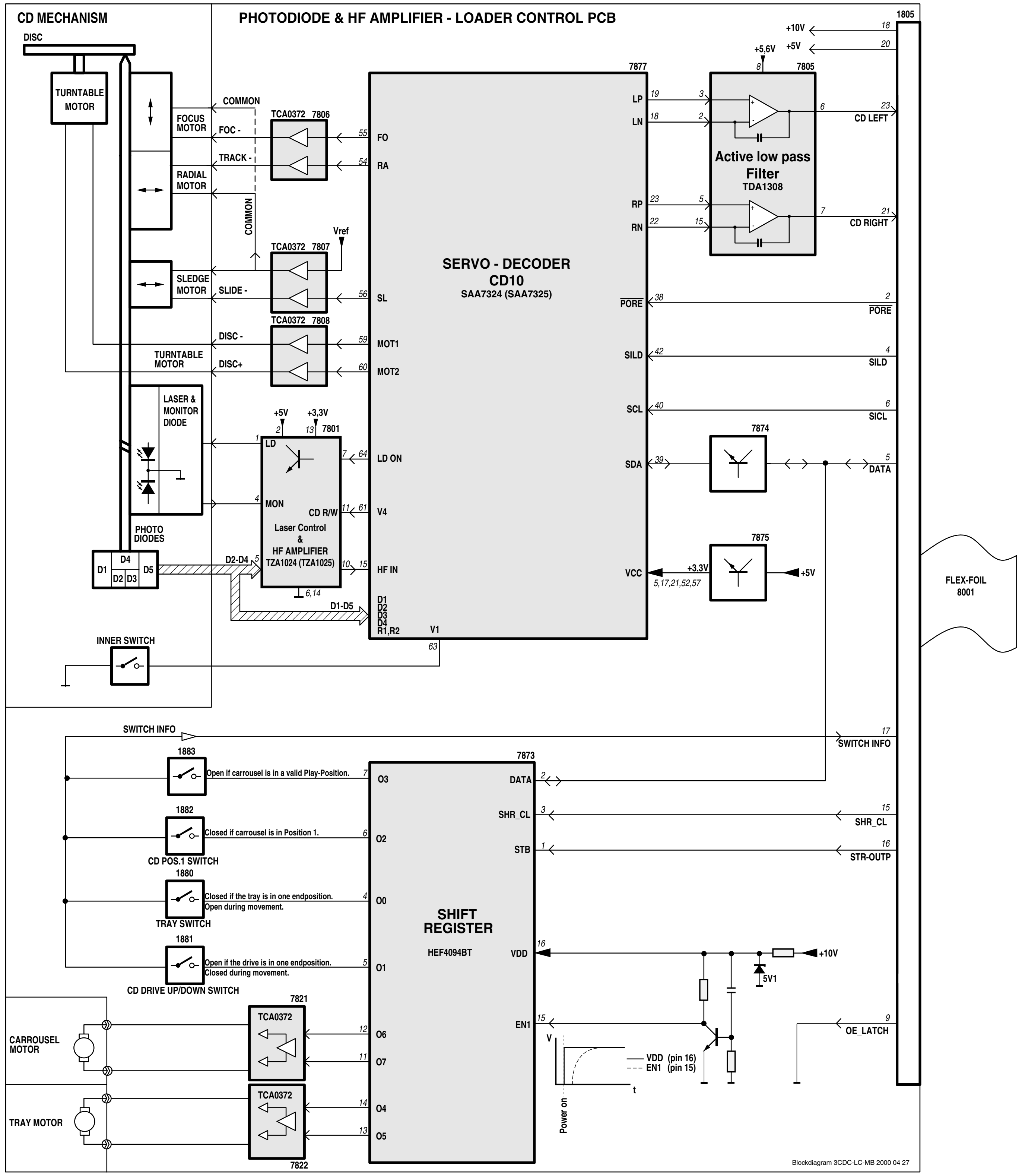
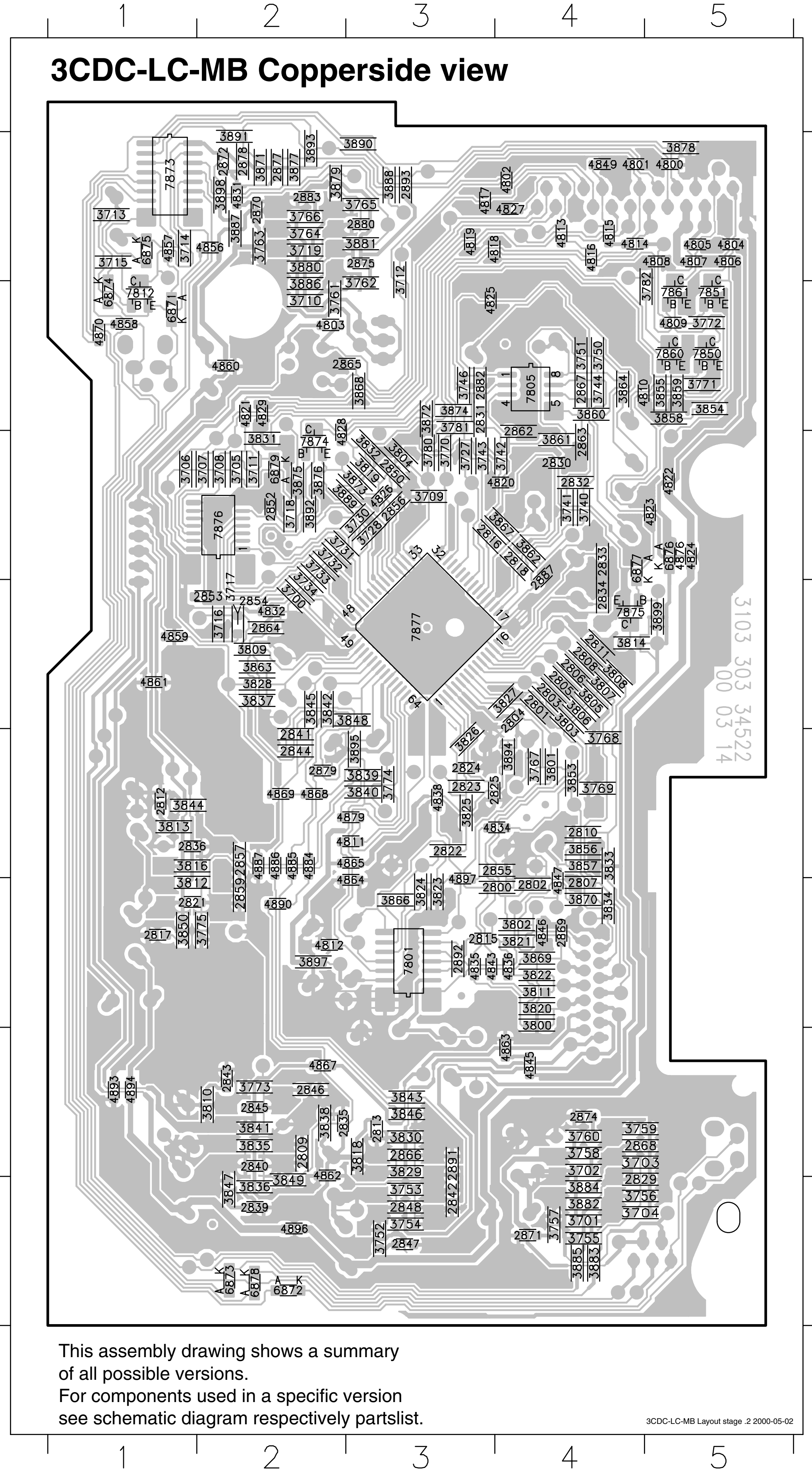
3CDC-LC-MB BLOCK DIAGRAM



CD MECHANISM
PHOTODIODE & HF AMPLIFIER - LOADER CONTROL PCB
DISC
TURNTABLE MOTOR
FOCUS MOTOR
RADIAL MOTOR
SLEDGE MOTOR
TURNTABLE MOTOR
LASER & MONITOR DIODE
PHOTO DIODES
COMMON
FOC -
TRACK -
SLIDE -
DISC -
DISC+
TCA0372 7806
TCA0372 7807
TCA0372 7808
Vref
FO
RA
SL
MOT1
MOT2
LD ON
V4
HF IN
D1 D2 D3 D4 R1,R2
V1
SERVO - DECODER
CD10
SAA7324 (SAA7325)
7877
LP
LN
RP
RN
PORE
SILD
SCL
SDA
VCC
+5V
+3,3V
7801
LD
MON
CD R/W
Laser Control & HF AMPLIFIER
TZA1024 (TZA1025)
6,14
D2-D4
D1-D5
D1 D4 D5 D2 D3
INNER SWITCH
Active low pass Filter
TDA1308
7805
+10V
+5V
+5,6V
1805
CD LEFT
CD RIGHT
PORE
SILD
SICL
DATA
7874
7875
+3,3V
5,17,21,52,57
FLEX-FOIL 8001
SWITCH INFO
1883
Open if carrousel is in a valid Play-Position.
1882
Closed if carrousel is in Position 1.
CD POS.1 SWITCH
1880
Closed if the tray is in one endposition.
Open during movement.
TRAY SWITCH
1881
Open if the drive is in one endposition.
Closed during movement.
CD DRIVE UP/DOWN SWITCH
7873
SHIFT REGISTER
HEF4094BT
O3
O2
O0
O1
O6
O7
O4
O5
DATA
SHR_CL
STB
VDD
EN1
SHR_CL
STR-OUTP
OE_LATCH
+10V
5V1
VDD (pin 16)
EN1 (pin 15)
Power on
V
t
CARROUSEL MOTOR
TRAY MOTOR
TCA0372
7821
7822
Blockdiagram 3CDC-LC-MB 2000 04 27

3CDC-LC-MB Copperside view

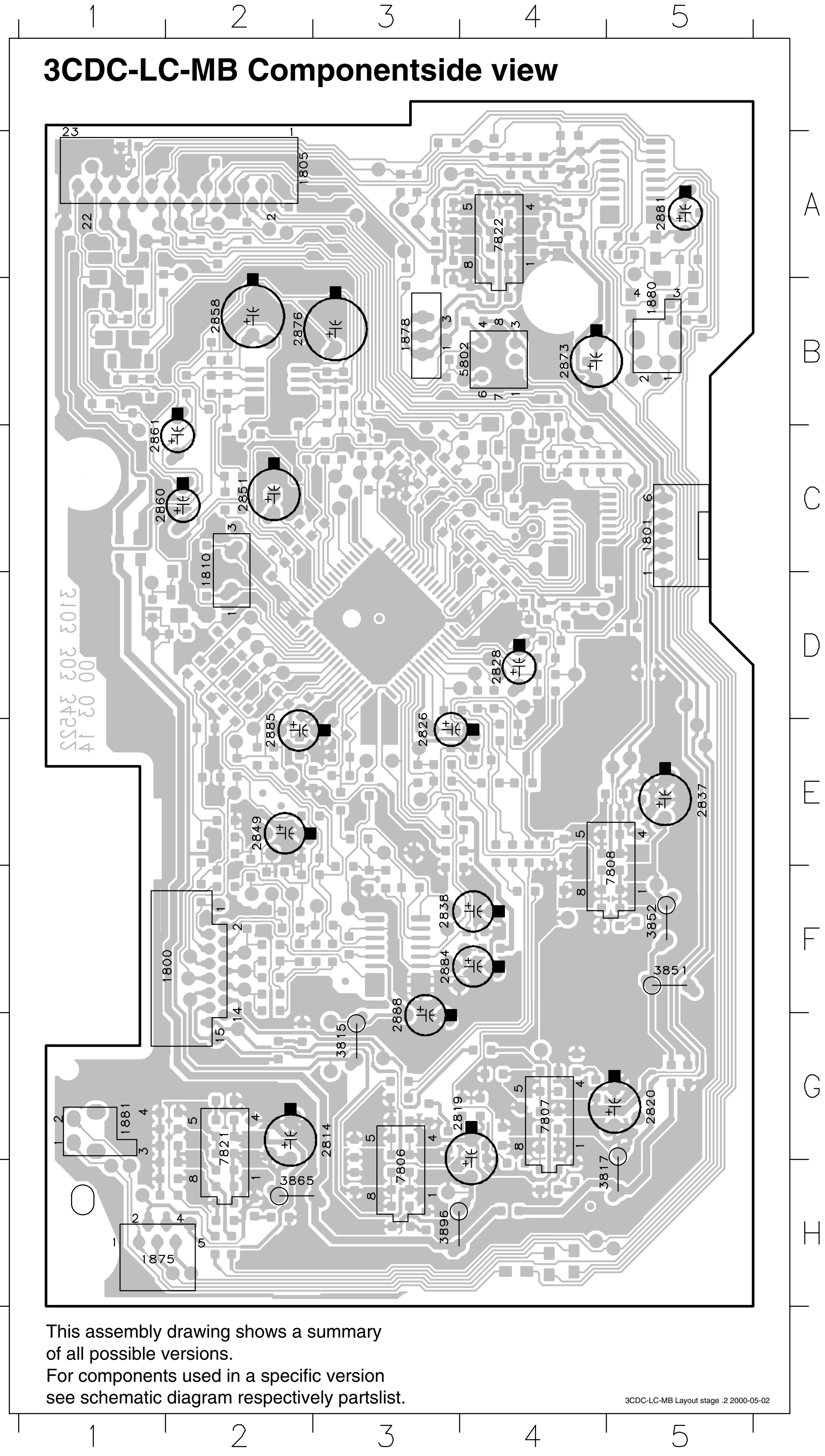


This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LC-MB Layout stage .2 2000-05-02

Copper side						Component side	
2800	F4	3751	B4	3883	H4	1800	F1
2801	D4	3752	H3	3884	H4	1801	C5
2802	F4	3753	H3	3885	H4	1805	A2
2803	D4	3754	H3	3886	B2	1810	C2
2804	D4	3755	H4	3887	A2	1875	H1
2805	D4	3756	H4	3888	A3	1878	B3
2806	D4	3757	H4	3889	C2	1880	B5
2807	F4	3758	G4	3890	A3	1881	G1
2808	D4	3759	G4	3891	A2	2814	G3
2809	G2	3760	G4	3892	C2	2819	G3
2810	E4	3761	B2	3893	A2	2820	G5
2811	D4	3762	B3	3894	E4	2826	E3
2812	E1	3763	A2	3895	E3	2828	D4
2813	G3	3764	A2	3897	F2	2837	E5
2815	F3	3765	A3	3898	A2	2838	F3
2816	C3	3766	A2	3899	D5	2849	E2
2817	F1	3767	E4	4800	A5	2851	C2
2818	C4	3768	E4	4801	A4	2858	B2
2821	F1	3769	E4	4802	A4	2860	C1
2822	E3	3770	C3	4803	B2	2861	C1
2823	E3	3771	B5	4804	A5	2873	B4
2824	E3	3772	B5	4805	A5	2876	B2
2825	E3	3773	G2	4806	A5	2881	A5
2829	H4	3774	E3	4807	A5	2884	F3
2830	C4	3775	F2	4808	A5	2885	E2
2831	B3	3780	C3	4809	B5	2888	G3
2832	C4	3781	B3	4810	B4	3815	G3
2833	C4	3782	B5	4811	E3	3817	H4
2834	D4	3800	F4	4812	F2	3851	F5
2835	G2	3801	E4	4813	A4	3852	F5
2836	E1	3802	F4	4814	A4	3865	H2
2839	H2	3803	D4	4815	A4	3896	H3
2840	G2	3804	C3	4816	A4	5802	B4
2841	E2	3805	D4	4817	A3	7806	H3
2842	H3	3806	D4	4818	A3	7807	G4
2843	G2	3807	D4	4819	A3	7808	E4
2844	E2	3808	D4	4820	C4	7821	G2
2845	G2	3809	D2	4821	B2	7822	A3
2846	G2	3810	G2	4822	C5		
2847	H3	3811	F4	4823	C5		
2848	H3	3812	F1	4824	C5		
2850	C3	3813	E1	4825	B3		
2852	C2	3814	D4	4826	C3		
2853	D2	3816	E1	4827	A4		
2854	D2	3818	G3	4828	C2		
2855	E4	3819	C3	4829	B2		
2856	C3	3820	F4	4831	A2		
2857	E2	3821	F4	4832	D2		
2859	F2	3822	F4	4834	E4		
2862	C4	3823	F3	4835	F3		
2863	C4	3824	F3	4836	F4		
2864	D2	3825	E3	4838	E3		
2865	B3	3826	E3	4843	F3		
2866	G3	3827	D4	4845	G4		
2867	B4	3828	D2	4846	F4		
2868	G4	3829	G3	4847	F4		
2869	F4	3830	G3	4849	A4		
2870	A2	3831	C2	4856	A2		
2871	H4	3832	C3	4857	A1		
2872	A2	3833	E4	4858	B1		
2874	G4	3834	F4	4859	D1		
2875	A3	3835	G2	4860	B2		
2877	A2	3836	H2	4861	D1		
2878	A2	3837	D2	4862	G2		
2879	E2	3838	G2	4863	G4		
2880	A3	3839	E3	4864	F3		
2882	B3	3840	E3	4865	E3		
2883	A2	3841	G2	4867	G2		
2887	C4	3842	D2	4868	E2		
2891	G3	3843	G3	4869	E2		
2892	F3	3844	E1	4870	B1		
2893	A3	3845	D2	4876	C5		
3700	D2	3846	G3	4879	E3		
3701	H4	3847	H2	4884	E2		
3702	G4	3848	D3	4885	E2		
3703	G4	3849	H2	4886	E2		
3704	H4	3850	F1	4887	E2		
3705	C2	3853	E4	4890	F2		
3706	C1	3854	B5	4893	G1		
3707	C2	3855	B5	4894	G1		
3708	C2	3856	E4	4896	H2		
3709	C3	3857	E4	4897	F3		
3710	B2	3858	B5	6871	B1		
3711	C2	3859	B5	6872	H2		
3712	A3	3860	B4	6873	H2		
3713	A1	3861	C4	6874	B1		
3714	A1	3862	C4	6875	A1		
3715	A1	3863	D2	6876	C5		
3716	D2	3864	B4	6877	C4		
3717	D2	3866	F3	6878	H2		
3718	C2	3867	C4	6879	C2		
3719	A2	3868	B3	7801	F3		
3727	C3	3869	F4	7805	B4		
3728	C3	3870	F4	7812	B1		
3730	C3	3871	A2	7850	B5		
3731	C2	3872	B3	7851	B5		
3732	C2	3873	C3	7860	B5		
3733	C2	3874	B3	7861	B5		
3734	D2	3875	C2	7873	A1		
3740	C4	3876	C2	7874	C2		
3741	C4	3877	A2	7875	D4		
3742	C4	3878	A5	7876	C2		
3743	C3	3879	A2	7877	D3		
3744	B4	3880	A2				
3746	B3	3881	A3				
3750	B4	3882	H4				

3CDC-LC-MB Componentside view



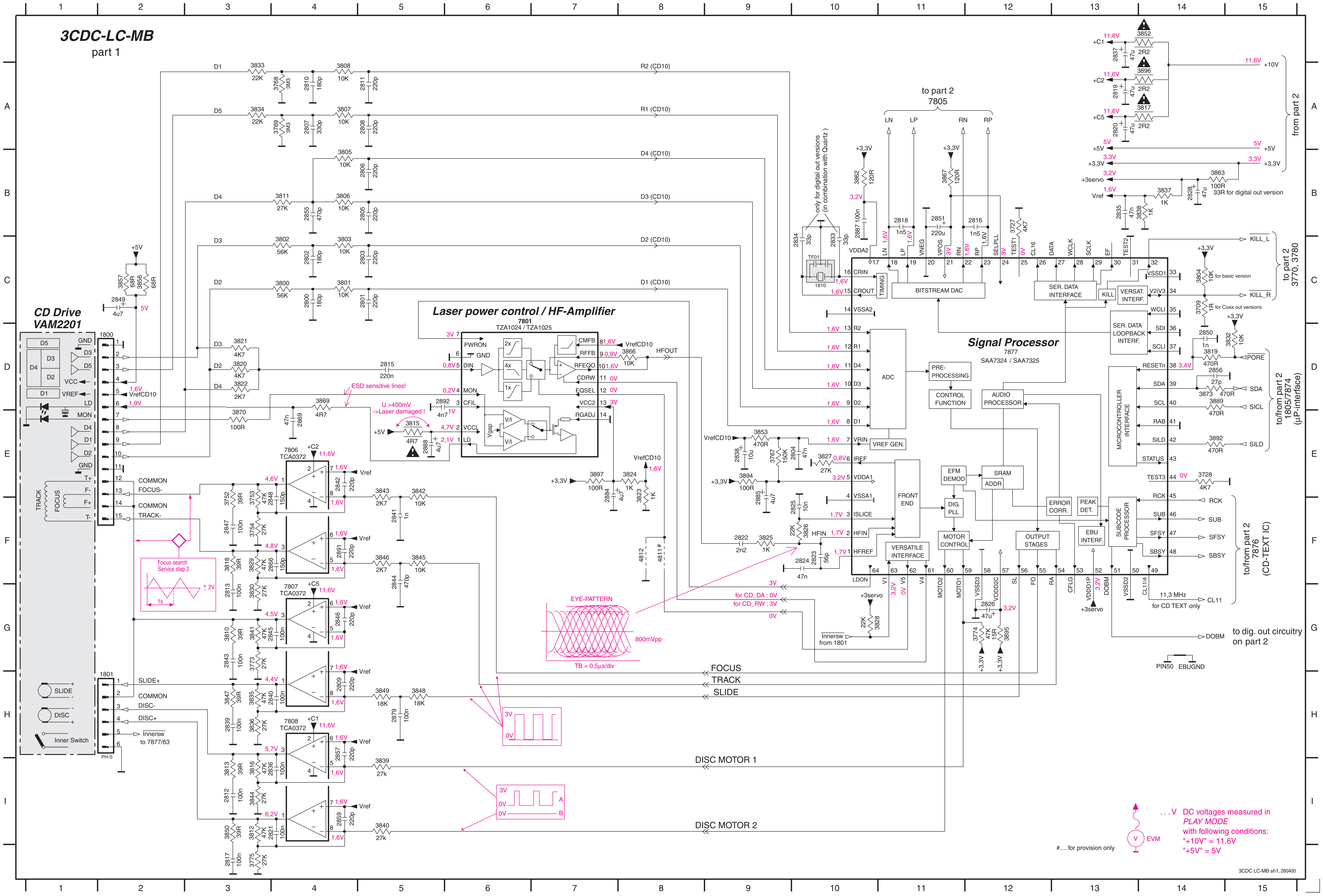
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LC-MB Layout stage .2 2000-05-02

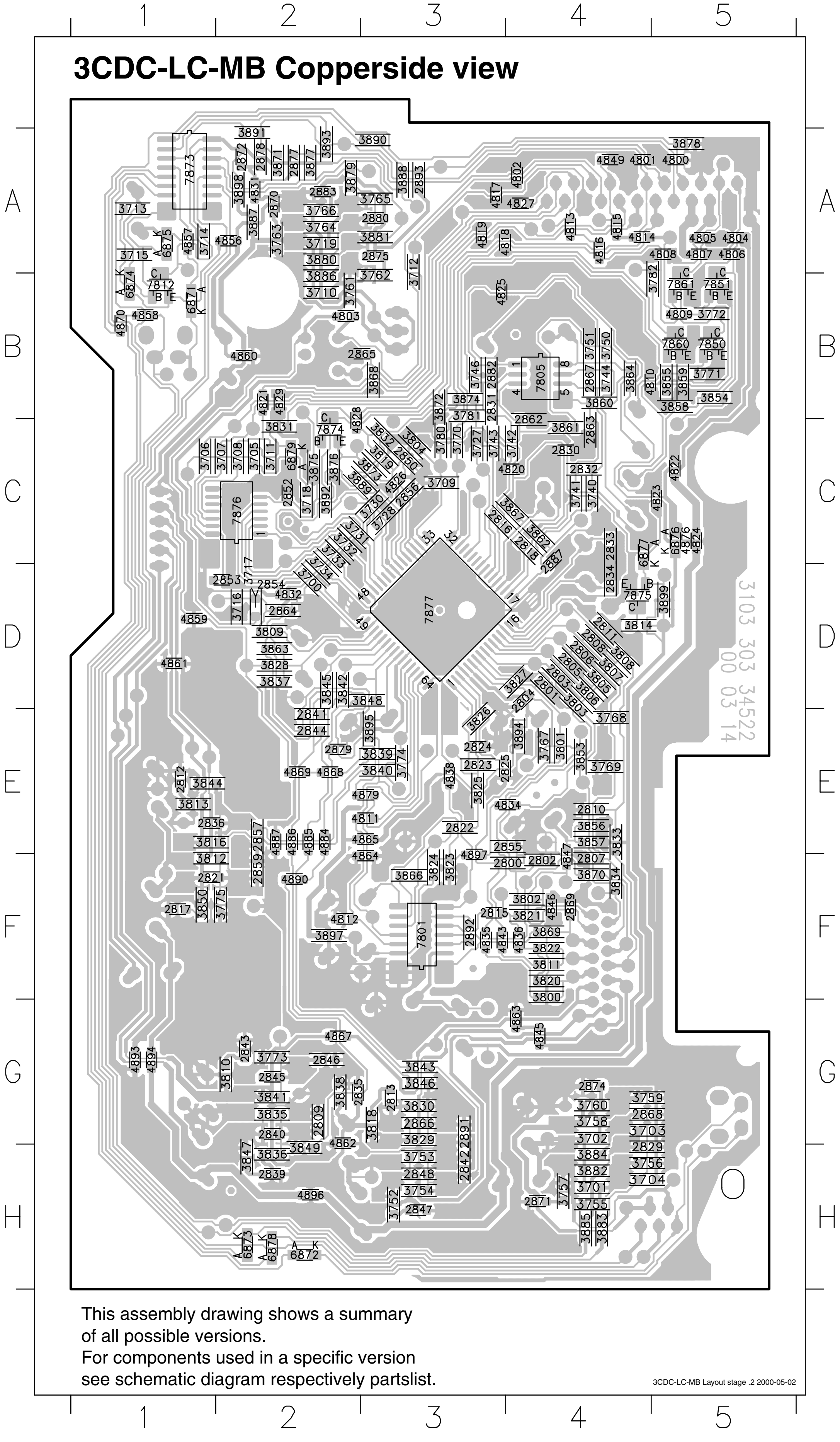
1800	D1
1801	G1
1810	C10
2800	C4
2801	C5
2802	C4
2803	C5
2804	E10
2805	B5
2806	B5
2807	A4
2808	A5
2809	H4
2810	A4
2811	A5
2812	I3
2813	G3
2815	D5
2816	B12
2817	I3
2818	B11
2819	A13
2820	A13
2821	I4
2822	F9
2823	F10
2824	F10
2825	F10
2826	G12
2828	B14
2833	C10
2834	C10
2835	B13
2836	I4
2837	A13
2838	E8
2839	H3
2840	H4
2841	F5
2842	E4
2843	G3
2844	F5
2845	G4
2846	G4
2847	F3
2848	F4
2849	C2
2850	D14
2851	B11
2855	B4
2856	D14
2857	H4
2859	I4
2866	F4
2869	E4
2879	H5
2884	E7
2885	F9
2887	B10
2888	E5
2891	F4
2892	D5
3709	C14
3727	B12
3728	E14
3752	F3
3753	F3
3754	F3
3767	E9
3768	A4
3769	A4
3773	G3
3774	G12
3775	I3
3800	C4
3801	C4
3802	C4
3803	C4
3804	C14
3805	B4
3806	B4
3807	A4
3808	A4
3810	G3
3811	B4
3812	I3
3813	I3
3815	E5
3816	I3
3817	A14
3818	F3
3819	D14
3820	D3
3821	D3
3822	D3
3823	E8
3824	E8
3825	F10
3826	F9
3827	E10
3828	G10
3829	F3
3830	G3
3832	D15
3833	A3
3834	A3
3835	H3
3836	H3
3837	B14
3838	B14
3839	I5
3840	I5
3841	G3
3842	E5
3843	E5
3844	I3
3845	F5
3846	F5
3847	H3
3848	H5
3849	H5
3850	I3
3852	A14
3853	E9
3856	C2
3857	C2
3862	B10
3863	B14
3866	D8
3867	B11
3869	D4
3870	E3
3873	D14
3889	D14
3892	E14
3894	E9
3895	G12
3896	A14
3897	E7
4811	F8
4812	F8
7801	E7
7806	E4
7807	G4
7808	H4
7877	D12

3CDC-LC-MB

part 1


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
CD Drive
VAM2201
D5
D3
D4
D2
D1
VCC
VREF
LD
MON
GND
TRACK
FOCUS
T+
F-
F+
T-
SLIDE
DISC
Inner Switch
1800
1801
PH-S
+5V
3857 68R
3856 68R
2849 4u7
5V
1,6V VrefCD10
1,9V
COMMON
FOCUS-
COMMON
TRACK-
SLIDE+
COMMON
DISC-
DISC+
Innersw
to 7877/63
D1
D5
D4
D3
D2
3833 22K
3768 3M3
2810 180p
3808 10K
2811 220p
3834 22K
3769 3M3
2807 330p
3807 10K
2808 220p
3805 10K
2806 220p
3811 27K
2855 470p
3806 10K
2805 220p
3802 56K
2802 180p
3803 10K
2803 220p
3800 56K
2800 180p
3801 10K
2801 220p
R2 (CD10)
R1 (CD10)
D4 (CD10)
D3 (CD10)
D2 (CD10)
D1 (CD10)
3821 4K7
3820 4K7
3822 2K7
3870 100R
3869 4R7
2869 47n
2815 220n
ESD sensitive lines!
U >400mV
->Laser damaged !
2892 4n7
3815 4R7
2888 4u7
Laser power control / HF-Amplifier
7801
TZA1024 / TZA1025
PWRON
GND
DIN
MON
CFIL
VCCL
LD
CMFB
RFFB
RFEQO
CDRW
EQSEL
VCC2
RGADJ
Vgap
2x
4x
1x
V/I
3V
0,8V
0,2V
4,7V
2,1V
1,6V
0,9V
1,6V
0V
0V
3V
VrefCD10
3866 10K
HFOUT
7806
TCA0372
+C2
11,6V
4,6V
1,6V
Vref
3752 39R
3753 47K
2848 150p
2842 220p
3843 2K7
3842 10K
2841 1n
2847 100n
3754 27K
4,8V
2891 220p
3818 39R
3829 47K
2866 150p
3846 2K7
3845 10K
2844 470p
2813 100n
3830 27K
7807
TCA0372
+C5
11,6V
4,5V
3810 39R
3841 47K
2845 100n
2846 220p
2843 100n
3773 27K
4,4V
3847 39R
3835 47K
2840 100n
2809 220p
3849 18K
3848 18K
2879 100n
2839 100n
3836 27K
7808
TCA0372
+C1
5,7V
3813 39R
3816 47K
2836 100n
2857 220p
3839 27k
2812 100n
3844 27K
6,2V
3850 39R
3812 47K
2821 100n
2859 220p
3840 27k
2817 100n
3775 27K
Focus search
Service step 2
± 2V
1s
EYE-PATTERN
800mVpp
TB = 0,5µs/div
for CD_DA : 0V
for CD_RW : 3V
3V
0V
FOCUS
TRACK
SLIDE
DISC MOTOR 1
DISC MOTOR 2
3V
0V
A
B
+3,3V
3897 100R
2884 4u7
3824 1K
3823 1K
VrefCD10
1,6V
4812
4811 #
VrefCD10
3853 470R
2838 10u
3767 150K
2804 47n
3827 27K
0,8V
3894 100R
2885 4u7
2825 10n
3826 22K
2822 2n2
3825 1K
2824 47n
2823 56p
only for digital out versions
(in combination with Quartz)
2834 33p
2833 33p
TF01
1810
2887 100n
3862 120R
3,2V
+3,3V
3867 120R
2818 1n5
2851 220u
2816 1n5
3727 4K7
to part 2
7805
LN
LP
RN
RP
Signal Processor
7877
SAA7324 / SAA7325
CRIN
CROUT
VSSA2
R2
R1
D4
D3
D2
D1
VRIN
IREF
VDDA1
VSSA1
ISLICE
HFIN
HFREF
VDDA2
VNEG
VPOS
SELPLL
TEST1
CL16
DATA
WCLK
SCLK
EF
TEST2
KILL
VSSD1
V2/V3
WCLI
SDI
SCLI
RESETn
SDA
SCL
RAB
SILD
STATUS
TEST3
RCK
SUB
SFSY
SBSY
LDON
V1
V5
V4
MOTO2
MOTO1
VSSD3
VDDD2C
SL
FO
RA
CFLG
VDDD1P
DOBM
VSSD2
CL11/4
TIMING
BITSTREAM DAC
SER. DATA INTERFACE
VERSAT. INTERF.
SER. DATA LOOPBACK INTERF.
ADC
PRE-PROCESSING
CONTROL FUNCTION
AUDIO PROCESSOR
VREF GEN.
FRONT END
EFM DEMOD
SRAM
ADDR
DIG. PLL
ERROR CORR.
PEAK DET.
MICROCONTROLLER INTERFACE
SUBCODE PROCESSOR
MOTOR CONTROL
OUTPUT STAGES
EBU INTERF.
VERSATILE INTERFACE
+3servo
3828 22K
Innersw
from 1801
2826 47u
3,2V
3774 47K
3895 15R
+3,3V
+3,3V
+3servo
11,3 MHz
CL11
for CD TEXT only
to dig. out circuitry
on part 2
DOBM
PIN50
EBUGND
+C1
+C2
+C5
11,6V
3852 2R2
2837 47u
3896 2R2
2819 47u
3817 2R2
2820 47u
+10V
from part 2
+5V
+3,3V
+3servo
Vref
3863 100R
33R for digital out version
3837 1K
2828 47u
2835 47n
3838 1K
KILL_L
KILL_R
3804 10K
for basic version
3709 1R
for Coax out versions
to part 2
3770, 3780
2850 1n
3832 10K
3819 470R
PORE
2856 27p
3873 470R
SDA
3889 470R
SICL
3892 470R
SILD
3728 4K7
to/from part 2
1805/7874
(µP-interface)
RCK
SUB
SFSY
SBSY
to/from part 2
7876
(CD-TEXT IC)
3,4V
0V
. . . V DC voltages measured in
PLAY MODE
with following conditions:
"+10V" = 11,6V
"+5V" = 5V
EVM
#.... for provision only

3CDC-LC-MB Copperside view



This assembly drawing shows a summary
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3CDC-LC-MB Layout stage .2 2000-05-02

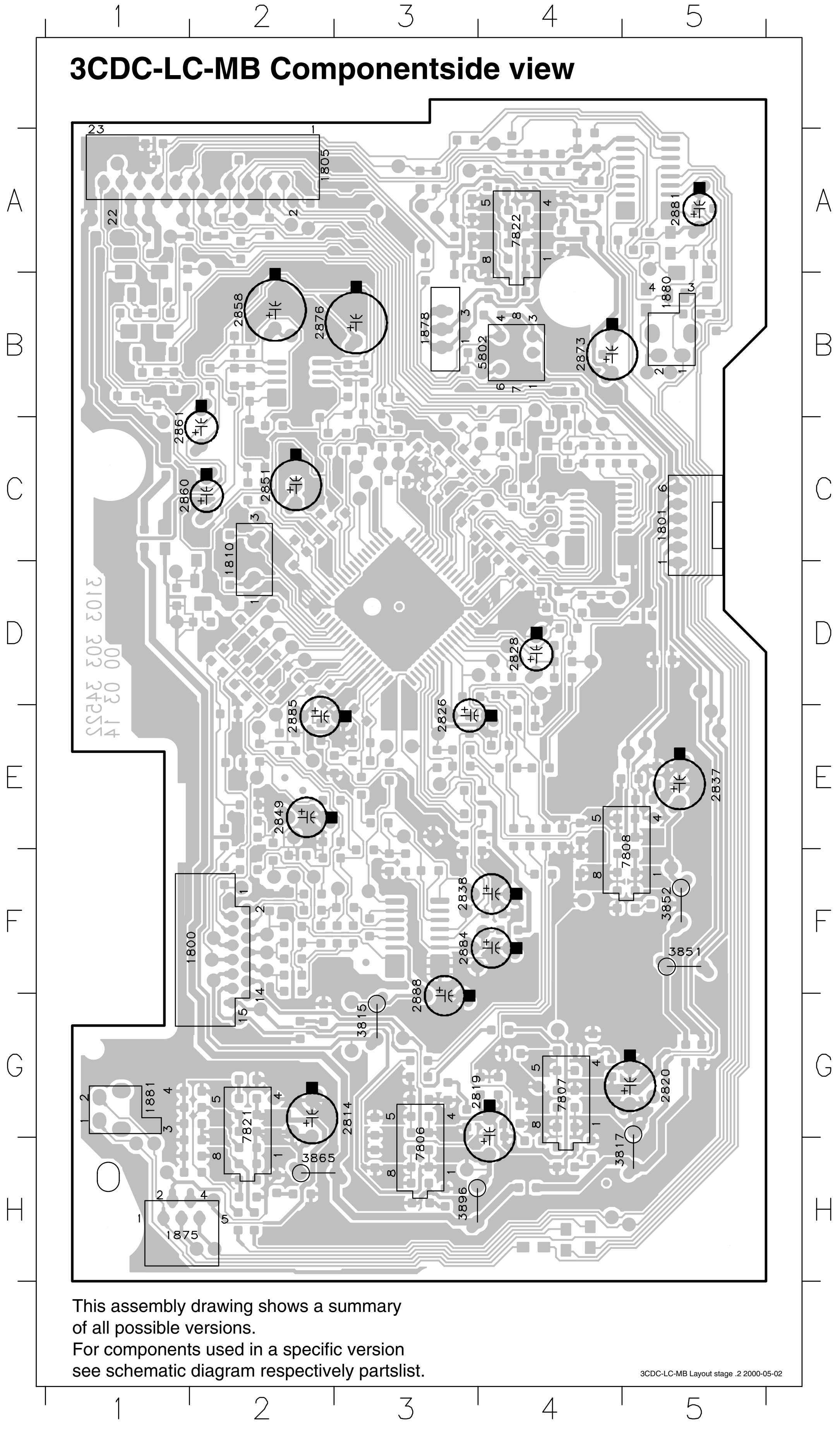
Copper side

2800	F4	3751	B4	3883	H4
2801	D4	3752	H3	3884	H4
2802	F4	3753	H3	3885	H4
2803	D4	3754	H3	3886	B2
2804	D4	3755	H4	3887	A2
2805	D4	3756	H4	3888	A3
2806	D4	3757	H4	3889	C2
2807	F4	3758	G4	3890	A3
2808	D4	3759	G4	3891	A2
2809	G2	3760	G4	3892	C2
2810	E4	3761	B2	3893	A2
2811	D4	3762	B3	3894	E4
2812	E1	3763	A2	3895	E3
2813	G3	3764	A2	3897	F2
2815	F3	3765	A3	3898	A2
2816	C3	3766	A2	3899	D5
2817	F1	3767	E4	4800	A5
2818	C4	3768	E4	4801	A4
2821	F1	3769	E4	4802	A4
2822	E3	3770	C3	4803	B2
2823	E3	3771	B5	4804	A5
2824	E3	3772	B5	4805	A5
2825	E3	3773	G2	4806	A5
2829	H4	3774	E3	4807	A5
2830	C4	3775	F2	4808	A5
2831	B3	3780	C3	4809	B5
2832	C4	3781	B3	4810	B4
2833	C4	3782	B5	4811	E3
2834	D4	3800	F4	4812	F2
2835	G2	3801	E4	4813	A4
2836	E1	3802	F4	4814	A4
2839	H2	3803	D4	4815	A4
2840	G2	3804	C3	4816	A4
2841	E2	3805	D4	4817	A3
2842	H3	3806	D4	4818	A3
2843	G2	3807	D4	4819	A3
2844	E2	3808	D4	4820	C4
2845	G2	3809	D2	4821	B2
2846	G2	3810	G2	4822	C5
2847	H3	3811	F4	4823	C5
2848	H3	3812	F1	4824	C5
2850	C3	3813	E1	4825	B3
2852	C2	3814	D4	4826	C3
2853	D2	3816	E1	4827	A4
2854	D2	3818	G3	4828	C2
2855	E4	3819	C3	4829	B2
2856	C3	3820	F4	4831	A2
2857	E2	3821	F4	4832	D2
2859	F2	3822	F4	4834	E4
2862	C4	3823	F3	4835	F3
2863	C4	3824	F3	4836	F4
2864	D2	3825	E3	4838	E3
2865	B3	3826	E3	4843	F3
2866	G3	3827	D4	4845	G4
2867	B4	3828	D2	4846	F4
2868	G4	3829	G3	4847	F4
2869	F4	3830	G3	4849	A4
2870	A2	3831	C2	4856	A2
2871	H4	3832	C3	4857	A1
2872	A2	3833	E4	4858	B1
2874	G4	3834	F4	4859	D1
2875	A3	3835	G2	4860	B2
2877	A2	3836	H2	4861	D1
2878	A2	3837	D2	4862	G2
2879	E2	3838	G2	4863	G4
2880	A3	3839	E3	4864	F3
2882	B3	3840	E3	4865	E3
2883	A2	3841	G2	4867	G2
2887	C4	3842	D2	4868	E2
2891	G3	3843	G3	4869	E2
2892	F3	3844	E1	4870	B1
2893	A3	3845	D2	4876	C5
3700	D2	3846	G3	4879	E3
3701	H4	3847	H2	4884	E2
3702	G4	3848	D3	4885	E2
3703	G4	3849	H2	4886	E2
3704	H4	3850	F1	4887	E2
3705	C2	3853	E4	4890	F2
3706	C1	3854	B5	4893	G1
3707	C2	3855	B5	4894	G1
3708	C2	3856	E4	4896	H2
3709	C3	3857	E4	4897	F3
3710	B2	3858	B5	6871	B1
3711	C2	3859	B5	6872	H2
3712	A3	3860	B4	6873	H2
3713	A1	3861	C4	6874	B1
3714	A1	3862	C4	6875	A1
3715	A1	3863	D2	6876	C5
3716	D2	3864	B4	6877	C4
3717	D2	3866	F3	6878	H2
3718	C2	3867	C4	6879	C2
3719	A2	3868	B3	7801	F3
3727	C3	3869	F4	7805	B4
3728	C3	3870	F4	7812	B1
3730	C3	3871	A2	7850	B5
3731	C2	3872	B3	7851	B5
3732	C2	3873	C3	7860	B5
3733	C2	3874	B3	7861	B5
3734	D2	3875	C2	7873	A1
3740	C4	3876	C2	7874	C2
3741	C4	3877	A2	7875	D4
3742	C4	3878	A5	7876	C2
3743	C3	3879	A2	7877	D3
3744	B4	3880	A2		
3746	B3	3881	A3		
3750	B4	3882	H4		

Component side

1800	F1
1801	C5
1805	A2
1810	C2
1875	H1
1878	B3
1880	B5
1881	G1
2814	G3
2819	G3
2820	G5
2826	E3
2828	D4
2837	E5
2838	F3
2849	E2
2851	C2
2858	B2
2860	C1
2861	C1
2873	B4
2876	B2
2881	A5
2884	F3
2885	E2
2888	G3
3815	G3
3817	H4
3851	F5
3852	F5
3865	H2
3896	H3
5802	B4
7806	H3
7807	G4
7808	E4
7821	G2
7822	A3

3CDC-LC-MB Componentside view



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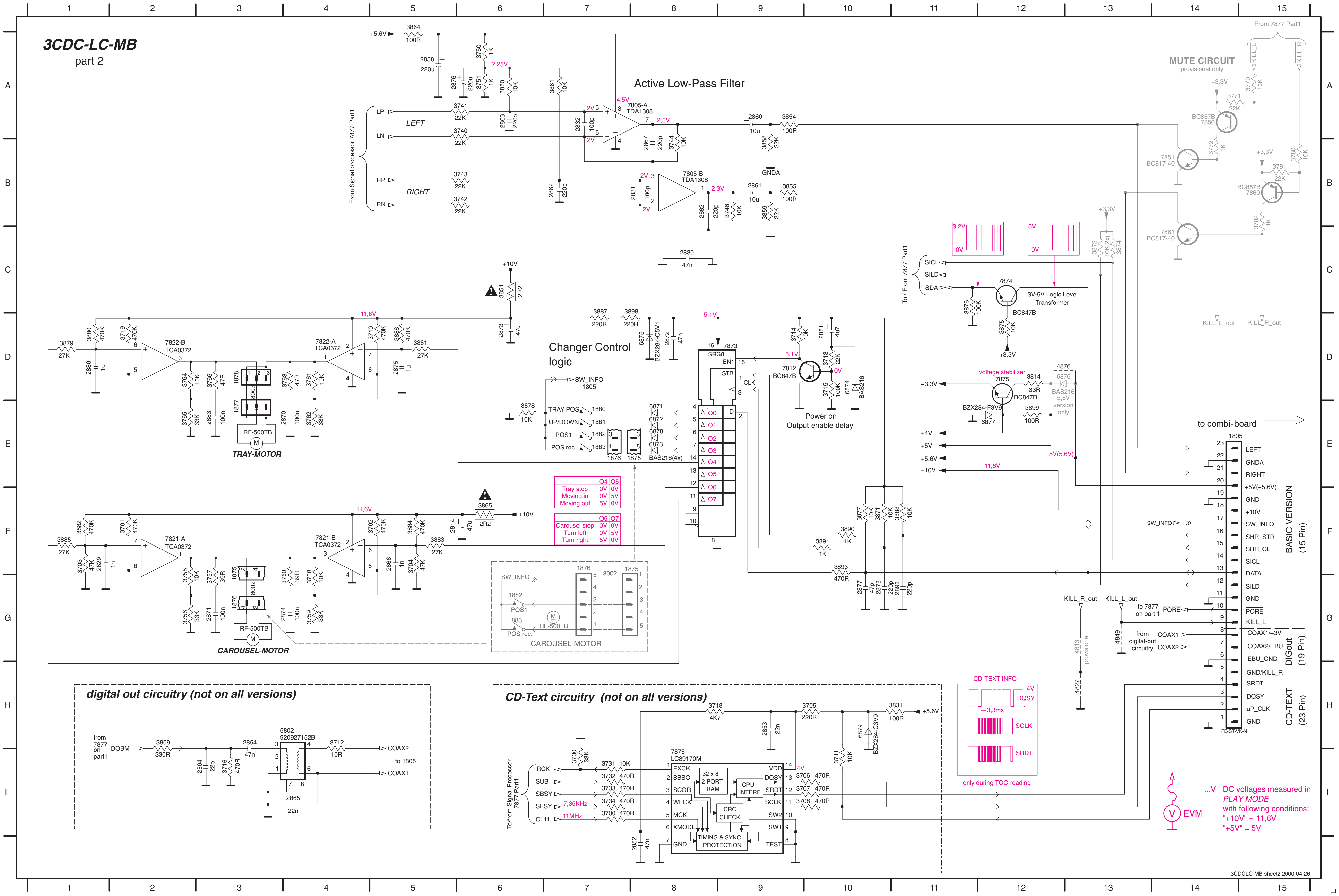
3CDC-LC-MB Layout stage .2 2000-05-02

1805	E14	1880	E7	2831	B8	2861	B9	2870	E4	2877	G10	3372	C13	3705	H10	3713	D10	3730	I7	3743	B6
1850	G3	1881	E7	2832	A7	2862	B7	2871	G3	2878	G10	3374	C13	3706	I10	3714	D9	3732	I7	3744	B8
1875	E8	1882	E7	2852	I8	2863	A6	2872	D8	2880	D1	3700	I7	3707	I10	3715	D10	3733	I7	3746	B9
1876	E7	1883	E7	2853	H9	2864	I3	2873	D6	2881	D10	3701	F2	3708	I10	3716	I3	3734	I7	3750	A6
1877	E3	2814	F6	2854	H3	2865	I4	2874	G4	2882	B8	3702	F5	3710	D5	3718	H8	3740	A6	3751	A6
1878	D3	2829	F2	2858	A5	2867	B8	2875	D5	2883	E3	3703	F1	3711	I10	3719	D2	3741	A6	3755	G2
1878	G3	2830	C8	2860	A9	2868	F5	2876	A6	2893	G11	3704	F5	3712	H4	3730	I7	3742	B6	3756	G2

3757	G3	3764	D2	3781	B15	3855	B9	3871	F10	3881	D5	3888	F11	4827	H13	6874	D10	7805-B	B8	7851	B14
3758	G4	3765	E2	3782	B15	3858	B9	3875	D12	3882	F1	3890	F10	4849	G13	6875	D8	7812	D9	7860	B15
3759	G4	3766	D3	3809	H2	3859	B9	3876	C11	3883	F5	3891	F10	4876	D12	6876	D12	7821-A	F2	7861	C14
3760	G4	3770	A15	3814	D12	3860	A6	3877	F10	3884	F5	3893	F10	5802	H4	6877	E12	7821-B	F4	7873	D9
3761	D4	3771	A14	3831	H11	3861	A7	3878	E6	3885	F1	3898	D7	6871	E8	6878	E8	7822-A	D4	7874	C12
3762	E4	3772	B14	3851	C6	3864	A5	3879	D1	3886	D5	3899	E12	6872	E8	6879	H10	7822-B	D2	7875	D12
3763	D4	3780	B15	3854	A9	3865	F6	3880	D1	3887	D7	4813	G13	6873	E8	7805-A	A7	7850	A14	7876	I8

3CDC-LC-MB

part 2


1
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15
A
B
C
D
E
F
G
H
I
Active Low-Pass Filter
From Signal processor 7877 Part1
LP
LN
RP
RN
LEFT
RIGHT
7805-A TDA1308
7805-B TDA1308
+5,6V
3864 100R
2858 220u
3750 1K
3751 1K
2876 220u
3860 10K
3861 10K
2,25V
4,5V
2V
2,3V
3741 22K
3740 22K
3743 22K
3742 22K
2863 220p
2862 220p
2832 100p
2831 100p
2867 220p
2882 220p
3744 10K
3746 10K
2860 10u
2861 10u
3854 100R
3855 100R
3858 22K
3859 22K
GNDA
2830 47n
MUTE CIRCUIT
provisional only
From 7877 Part1
KILL_L
KILL_R
+3,3V
3770 10K
3771 22K
BC857B 7850
3772 1K
7851 BC817-40
3780 10K
3781 22K
BC857B 7860
3782 1K
7861 BC817-40
3872 10K(2x) 3874
KILL_L_out
KILL_R_out
To / From 7877 Part1
SICL
SILD
SDA
3,2V
0V
5V
0V
7874
3V-5V Logic Level Transformer
BC847B
3876 100K
3875 10K
+3,3V
+10V
3851 2R2
2873 47u
11,6V
3887 220R
3898 220R
5,1V
6875 BZX284-C5V1
2872 47n
Changer Control logic
SW_INFO 1805
3878 10K
TRAY POS 1880
UP/DOWN 1881
POS1 1882
POS rec. 1883
1876
1875
6871
6872
6878
6873
BAS216(4x)
16 7873
SRG8
EN1
STB
CLK
D
O0
O1
O2
O3
O4
O5
O6
O7
3714 10K
2881 4u7
7812 BC847B
0V
3713 22K
3715 100K
6874 BAS216
Power on Output enable delay
voltage stabilizer
7875 BC847B
BZX284-F3V9
6877
3814 33R
3899 100R
4876
6876
BAS216 5,6V version only
+3,3V
+4V
+5V
+5,6V
+10V
5V(5,6V)
to combi-board
1805
23 LEFT
22 GNDA
21 RIGHT
20 +5V(+5,6V)
19 GND
18 +10V
17 SW_INFO
16 SHR_STR
15 SHR_CL
14 SICL
13 DATA
12 SILD
11 GND
10 PORE
9 KILL_L
8 COAX1/+3V
7 COAX2/EBU
6 EBU_GND
5 GND/KILL_R
4 SRDT
3 DQSY
2 uP_CLK
1 GND
FE-ST-VK-N
BASIC VERSION (15 Pin)
DIGout (19 Pin)
CD-TEXT (23 Pin)
to 7877 on part 1
from digital-out circuitry
COAX1
COAX2
4813 provisional
4849
4827
3877 10K
3871 10K
3888 10K
3890 1K
3891 1K
3893 470R
2877 47p
2878 220p
2893 220p
7822-B TCA0372
7822-A TCA0372
3879 27K
3880 470K
3719 470K
2880 1u
3764 10K
3766 47R
3765 33K
2883 100n
1878
8003
1877
RF-500TB
TRAY-MOTOR
3763 47R
3761 10K
2870 100n
3762 33K
3710 470K
3886 470K
3881 27K
2875 1u
7821-A TCA0372
7821-B TCA0372
3885 27K
3882 470K
3701 470K
3703 47K
2829 1n
3755 10K
3757 39R
3756 33K
2871 100n
8002
RF-500TB
CAROUSEL-MOTOR
3760 39R
3758 10K
2874 100n
3759 33K
3702 470K
3884 470K
2868 1n
3704 47K
3883 27K
2814 47u
3865 2R2
+10V
CAROUSEL-MOTOR
SW_INFO
1882 POS1
1883 POS rec.
RF-500TB
digital out circuitry (not on all versions)
from 7877 on part1
DOBM
3809 330R
2864 22p
3716 470R
2854 47n
5802 920927152B
3712 10R
COAX2
to 1805
COAX1
2865 22n
CD-Text circuitry (not on all versions)
To/from Signal Processor 7877 Part1
RCK
SUB
SBSY
SFSY
CL11
7,35KHz
11MHz
3730 33K
3731 10K
3732 470R
3733 470R
3734 470R
3700 470R
7876 LC89170M
EXCK
SBSO
SCOR
WFCK
MCK
XMODE
GND
32 x 8 2 PORT RAM
CPU INTERF
CRC CHECK
TIMING & SYNC PROTECTION
VDD
DQSY
SRDT
SCLK
SW2
SW1
TEST
4V
3706 470R
3707 470R
3708 470R
3718 4K7
2853 22n
3705 220R
3831 100R
+5,6V
6879 BZX284-C3V9
3711 10K
2852 47n
CD-TEXT INFO
4V
DQSY
3,3ms
SCLK
SRDT
only during TOC-reading
EVM
...V DC voltages measured in PLAY MODE with following conditions: "+10V" = 11,6V "+5V" = 5V
3CDCLC-MB sheet2 2000-04-26

	O4	O5
Tray stop	0V	0V
Moving in	0V	5V
Moving out	5V	0V

	O6	O7
Carousel stop	0V	0V
Turn left	0V	5V
Turn right	5V	0V

ELECTRICAL PARTS LIST 3CDC-LC-MB MODULE

MISCELLANEOUS

1800	4822 265 10925	FFC-CONNECTOR, 15P, SIDE ENTRY
1805	4822 265 10979	FLEX FOIL CONNECTOR 15PIN
1805	4822 265 11182	FLEX FOIL CONNECTOR 23PIN
1805	4822 265 11545	FLEX FOIL CONNECTOR 19PIN
1875	4822 267 10958	FFC-CONNECTOR, 5P, SIDE ENTRY
1876	2422 025 08332	FLEX FOIL CONNECTOR 5PIN
1880	4822 276 13503	SWITCH, Tray in endposition
1881	4822 276 13503	SWITCH, Drive up/down
1882	4822 276 13503	SWITCH, Position 1
1883	4822 276 13503	SWITCH, Position recogniced
8002	3103 308 91990	FLEX FOIL CABLE 5P, 200mm
8005	3103 308 91980	FLEX FOIL CABLE 15P, 170mm

CAPACITORS

2800	©	4822 126 10326	180pF	5%	
2801	©	4822 122 33575	220pF	5%	50V
2802	©	4822 126 10326	180pF	5%	
2803	©	4822 122 33575	220pF	5%	50V
2804	©	4822 126 13751	47nF	10%	50V
2805	©	4822 122 33575	220pF	5%	50V
2806	©	4822 122 33575	220pF	5%	50V
2807	©	5322 122 31863	330pF	5%	50V
2808	©	4822 122 33575	220pF	5%	50V
2809	©	4822 122 33575	220pF	5%	50V
2810	©	4822 126 10326	180pF	5%	
2811	©	4822 122 33575	220pF	5%	50V
2812	©	4822 126 14585	100nF	10%	50V
2813	©	4822 126 14585	100nF	10%	50V
2814		4822 124 40433	47µF	20%	25V
2815	©	4822 126 14076	220nF	20%	25V
2816	©	4822 126 13344	1,5nF	5%	63V
2817	©	4822 126 14585	100nF	10%	50V
2818	©	4822 126 13344	1,5nF	5%	63V
2819		4822 124 40433	47µF	20%	25V
2820		4822 124 40433	47µF	20%	25V
2821	©	4822 126 14585	100nF	10%	50V
2822	©	2222 861 15222	2,2nF	10%	50V
2823	©	4822 126 13693	56pF	1%	63V
2824	©	4822 126 13751	47nF	10%	50V
2825	©	4822 122 33177	10nF	20%	50V
2826		4822 124 12362	47µF	20%	4V
2828		4822 124 12362	47µF	20%	4V
2829	©	5322 122 31647	1nF	10%	63V
2830	©	4822 126 13751	47nF	10%	50V
2831	©	5322 122 32531	100pF	5%	50V
2832	©	5322 122 32531	100pF	5%	50V
2833	©	5322 122 32659	33pF	5%	50V
2834	©	5322 122 32659	33pF	5%	50V
2835	©	4822 126 13751	47nF	10%	50V
2836	©	4822 126 14585	100nF	10%	50V
2837		4822 124 40433	47µF	20%	25V
2838		4822 124 40248	10µF	20%	63V
2839	©	4822 126 14585	100nF	10%	50V
2840	©	4822 126 14585	100nF	10%	50V
2841	©	5322 122 31647	1nF	10%	63V
2842	©	5322 126 10794	220pF	10%	
2843	©	4822 126 14585	100nF	10%	50V
2844	©	5322 122 34099	470pF	10%	63V
2845	©	4822 126 14585	100nF	10%	50V
2846	©	4822 122 33575	220pF	5%	50V
2847	©	4822 126 14585	100nF	10%	50V
2848	©	5322 122 33538	150pF	5%	63V
2849		4822 124 40769	4,7µF	20%	100V
2850	©	5322 122 31647	1nF	10%	63V
2851		4822 124 42383	220µF	20%	4V
2852	©	4822 126 13751	47nF	10%	50V
2853	©	5322 122 32654	22nF	10%	63V
2854	©	4822 126 13751	47nF	10%	50V
2855	©	5322 122 34099	470pF	10%	63V
2856	©	4822 126 13691	27pF	1%	63V
2857	©	4822 122 33575	220pF	5%	50V
2858		4822 124 12245	220µF	20%	16V
2859	©	4822 122 33575	220pF	5%	50V
2860		4822 124 11947	10µF	20%	16V
2861		4822 124 11947	10µF	20%	16V
2862	©	4822 122 33575	220pF	5%	50V
2863	©	4822 122 33575	220pF	5%	50V
2864	©	5322 122 32658	22pF	5%	50V
2865	©	5322 122 32654	22nF	10%	63V
2866	©	5322 122 33538	150pF	5%	63V
2867	©	4822 122 33575	220pF	5%	50V
2868	©	5322 122 31647	1nF	10%	63V
2869	©	4822 126 13751	47nF	10%	50V
2870	©	4822 126 14585	100nF	10%	50V
2871	©	4822 126 14585	100nF	10%	50V
2872	©	4822 126 13751	47nF	10%	50V
2873		4822 124 40433	47µF	20%	25V
2874	©	4822 126 14585	100nF	10%	50V
2875	©	4822 126 14043	1µF	20%	16V
2876		4822 124 12245	220µF	20%	16V
2877	©	4822 126 13692	47pF	1%	63V
2878	©	4822 122 33575	220pF	5%	50V
2879	©	4822 126 14585	100nF	10%	50V
2880	©	4822 126 14043	1µF	20%	16V
2881		4822 124 40769	4,7µF	20%	100V
2882	©	4822 122 33575	220pF	5%	50V
2883	©	4822 126 14585	100nF	10%	50V
2884		4822 124 40769	4,7µF	20%	100V
2885		4822 124 40769	4,7µF	20%	100V
2887	©	4822 126 14585	100nF	10%	50V
2888		4822 124 40769	4,7µF	20%	100V
2891	©	4822 122 33575	220pF	5%	50V
2892	©	5322 126 10223	4,7nF	10%	63V
2893	©	4822 122 33575	220pF	5%	50V

RESISTORS

3700	©	4822 051 20471	470Ω	5%	0,1W
3701	©	4822 051 20474	470kΩ	5%	0,1W
3702	©	4822 051 20474	470kΩ	5%	0,1W
3703	©	4822 117 10834	47kΩ	1%	0,1W
3704	©	4822 117 10834	47kΩ	1%	0,1W
3705	©	4822 117 11503	220Ω	5%	0,1W
3706	©	4822 051 20471	470Ω	5%	0,1W
3707	©	4822 051 20471	470Ω	5%	0,1W
3708	©	4822 051 20471	470Ω	5%	0,1W
3709	©	4822 051 20108	1Ω	5%	0,1W
3710	©	4822 051 20474	470kΩ	5%	0,1W
3711	©	4822 117 10833	10kΩ	1%	0,1W
3712	©	4822 051 20109	10Ω	5%	0,1W
3713	©	4822 051 20223	22kΩ	5%	0,1W
3714	©	4822 117 10833	10kΩ	1%	0,1W
3715	©	4822 117 10837	100kΩ	1%	0,1W
3716	©	4822 051 20471	470Ω	5%	0,1W
3718	©	4822 051 20472	4,7kΩ	5%	0,1W
3719	©	4822 051 20474	470kΩ	5%	0,1W
3727	©	4822 051 20472	4,7kΩ	5%	0,1W
3728	©	4822 051 20472	4,7kΩ	5%	0,1W
3730	©	4822 051 20333	33kΩ	5%	0,1W
3731	©	4822 117 10833	10kΩ	1%	0,1W
3732	©	4822 051 20471	470Ω	5%	0,1W
3733	©	4822 051 20471	470Ω	5%	0,1W

ELECTRICAL PARTS LIST 3CDC-LC-MB MODULE

RESISTORS

3734	©	4822 051 20471	470Ω	5%	0,1W
3740	©	4822 051 20223	22kΩ	5%	0,1W
3741	©	4822 051 20223	22kΩ	5%	0,1W
3742	©	4822 051 20223	22kΩ	5%	0,1W
3743	©	4822 051 20223	22kΩ	5%	0,1W
3744	©	4822 117 10833	10kΩ	1%	0,1W
3746	©	4822 117 10833	10kΩ	1%	0,1W
3750	©	4822 051 10102	1kΩ	2%	0,25W
3751	©	4822 051 10102	1kΩ	2%	0,25W
3752	©	4822 051 20399	39Ω	5%	0,1W
3753	©	4822 117 10834	47kΩ	1%	0,1W
3754	©	4822 117 12024	27kΩ	1%	0,1W
3755	©	4822 117 10833	10kΩ	1%	0,1W
3756	©	2120 108 92632	33kΩ	1%	0,1W
3757	©	4822 051 20399	39Ω	5%	0,1W
3758	©	4822 117 10833	10kΩ	1%	0,1W
3759	©	2120 108 92632	33kΩ	1%	0,1W
3760	©	4822 051 20399	39Ω	5%	0,1W
3761	©	4822 117 10833	10kΩ	1%	0,1W
3762	©	2120 108 92632	33kΩ	1%	0,1W
3763	©	4822 051 20479	47Ω	5%	0,1W
3764	©	4822 117 10833	10kΩ	1%	0,1W
3765	©	2120 108 92632	33kΩ	1%	0,1W
3766	©	4822 051 20479	47Ω	5%	0,1W
3773	©	4822 117 12024	27kΩ	1%	0,1W
3775	©	4822 117 12024	27kΩ	1%	0,1W
3800	©	4822 117 11148	56kΩ	1%	0,1W
3801	©	4822 117 10833	10kΩ	1%	0,1W
3802	©	4822 117 11148	56kΩ	1%	0,1W
3803	©	4822 117 10833	10kΩ	1%	0,1W
3804	©	4822 117 10833	10kΩ	1%	0,1W
3805	©	4822 117 10833	10kΩ	1%	0,1W
3806	©	4822 117 10833	10kΩ	1%	0,1W
3807	©	4822 117 10833	10kΩ	1%	0,1W
3808	©	4822 117 10833	10kΩ	1%	0,1W
3809	©	4822 117 13577	330Ω	1%	0,1W
3810	©	4822 051 20399	39Ω	5%	0,1W
3811	©	4822 051 20273	27kΩ	5%	0,1W
3812	©	4822 117 10834	47kΩ	1%	0,1W
3813	©	4822 051 20399	39Ω	5%	0,1W
3814	©	4822 051 20339	33Ω	5%	0,1W
3815		4822 052 10478	4,7Ω	5%	NFR
3816	©	4822 117 10834	47kΩ	1%	0,1W
3817		4822 052 10228	2,2Ω	5%	0,33W
3818	©	4822 051 20399	39Ω	5%	0,1W
3819	©	4822 051 20471	470Ω	5%	0,1W
3820	©	4822 051 20472	4,7kΩ	5%	0,1W
3821	©	4822 051 20472	4,7kΩ	5%	0,1W
3822	©	4822 117 12955	2,7kΩ	1%	0,1W
3823	©	4822 051 10102	1kΩ	2%	0,25W
3824	©	4822 051 10102	1kΩ	2%	0,25W
3825	©	4822 051 10102	1kΩ	2%	0,25W
3826	©	4822 051 20223	22kΩ	5%	0,1W
3827	©	4822 051 20273	27kΩ	5%	0,1W
3828	©	4822 051 20223	22kΩ	5%	0,1W
3829	©	4822 117 10834	47kΩ	1%	0,1W
3830	©	4822 117 12024	27kΩ	1%	0,1W
3831	©	4822 051 20101	100Ω	5%	0,1W
3832	©	4822 117 10833	10kΩ	1%	0,1W
3833	©	4822 051 20223	22kΩ	5%	0,1W
3834	©	4822 051 20223	22kΩ	5%	0,1W
3835	©	4822 117 10834	47kΩ	1%	0,1W
3836	©	4822 117 12024	27kΩ	1%	0,1W
3837	©	4822 051 10102	1kΩ	2%	0,25W
3838	©	4822 051 10102	1kΩ	2%	0,25W
3839	©	4822 051 20273	27kΩ	5%	0,1W
3840	©	4822 051 20273	27kΩ	5%	0,1W
3841	©	4822 117 10834	47kΩ	1%	0,1W
3842	©	4822 117 10833	10kΩ	1%	0,1W
3843	©	4822 117 12955	2,7kΩ	1%	0,1W
3844	©	4822 117 12024	27kΩ	1%	0,1W
3845	©	4822 117 10833	10kΩ	1%	0,1W
3846	©	4822 117 12955	2,7kΩ	1%	0,1W
3847	©	4822 051 20399	39Ω	5%	0,1W
3848	©	4822 117 10965	18kΩ	2%	0,1W
3849	©	4822 117 10965	18kΩ	2%	0,1W
3850	©	4822 051 20399	39Ω	5%	0,1W
3851		4822 052 10228	2,2Ω	5%	0,33W
3852		4822 052 10228	2,2Ω	5%	0,33W
3853	©	4822 051 20471	470Ω	5%	0,1W
3854	©	4822 051 20101	100Ω	5%	0,1W
3855	©	4822 051 20101	100Ω	5%	0,1W
3856	©	4822 117 12521	68Ω	1%	0,1W
3857	©	4822 117 12521	68Ω	1%	0,1W
3858	©	4822 051 20223	22kΩ	5%	0,1W
3859	©	4822 051 20223	22kΩ	5%	0,1W
3860	©	4822 117 10833	10kΩ	1%	0,1W
3861	©	4822 117 10833	10kΩ	1%	0,1W
3862	©	4822 051 20121	120Ω	5%	0,1W
3863	©	4822 051 20101	100Ω	5%	0,1W
3863	©	4822 051 20339	33Ω	5%	0,1W
3864	©	4822 051 20101	100Ω	5%	0,1W
3865		4822 052 10228	2,2Ω	5%	0,33W
3866	©	4822 117 10833	10kΩ	1%	0,1W
3867	©	4822 051 20121	120Ω	5%	0,1W
3869	©	4822 051 20478	4,7Ω	5%	0,1W
3870	©	4822 051 20101	100Ω	5%	0,1W
3871	©	4822 117 10833	10kΩ	1%	0,1W
3873	©	4822 051 20471	470Ω	5%	0,1W
3875	©	4822 117 10833	10kΩ	1%	0,1W
3876	©	4822 117 10837	100kΩ	1%	0,1W
3877	©	4822 117 10833	10kΩ	1%	0,1W
3878	©	4822 117 10833	10kΩ	1%	0,1W
3879	©	4822 051 20273	27kΩ	5%	0,1W
3880	©	4822 051 20474	470kΩ	5%	0,1W
3881	©	4822 051 20273	27kΩ	5%	0,1W
3882	©	4822 051 20474	470kΩ	5%	0,1W
3883	©	4822 051 20273	27kΩ	5%	0,1W
3884	©	4822 051 20474	470kΩ	5%	0,1W
3885	©	4822 051 20273	27kΩ	5%	0,1W
3886	©	4822 051 20474	470kΩ	5%	0,1W
3887	©	4822 117 11503	220Ω	5%	0,1W
3888	©	4822 117 10833	10kΩ	1%	0,1W
3889	©	4822 051 20471	470Ω	5%	0,1W
3890	©	4822 051 10102	1kΩ	2%	0,25W
3891	©	4822 051 10102	1kΩ	2%	0,25W
3892	©	4822 051 20471	470Ω	5%	0,1W
3893	©	4822 051 20471	470Ω	5%	0,1W
3894	©	4822 051 20101	100Ω	5%	0,1W
3895	©	4822 051 20159	15Ω	5%	0,1W
3896		4822 052 10228	2,2Ω	5%	0,33W
3897	©	4822 051 20101	100Ω	5%	0,1W
3898	©	4822 117 11503	220Ω	5%	0,1W
3899	©	4822 051 20101	100Ω	5%	0,1W
4800	©	4822 051 20008	CHIP JUMPER 0805		
4801	©	4822 051 20008	CHIP JUMPER 0805		
4802	©	4822 051 20008	CHIP JUMPER 0805		
4804	©	4822 051 20008	CHIP JUMPER 0805		
4805	©	4822 051 20008	CHIP JUMPER 0805		
4806	©	4822 051 20008	CHIP JUMPER 0805		

ELECTRICAL PARTS LIST 3CDC-LC-MB MODULE

RESISTORS

4807	©	4822 051 20008	CHIP JUMPER 0805
4808	©	4822 051 20008	CHIP JUMPER 0805
4809	©	4822 051 20008	CHIP JUMPER 0805
4810	©	4822 051 20008	CHIP JUMPER 0805
4812	©	4822 051 20008	CHIP JUMPER 0805
4814	©	4822 051 20008	CHIP JUMPER 0805
4815	©	4822 051 20008	CHIP JUMPER 0805
4816	©	4822 051 20008	CHIP JUMPER 0805
4817	©	4822 051 20008	CHIP JUMPER 0805
4818	©	4822 051 20008	CHIP JUMPER 0805
4819	©	4822 051 20008	CHIP JUMPER 0805
4820	©	4822 051 20008	CHIP JUMPER 0805
4821	©	4822 051 20008	CHIP JUMPER 0805
4822	©	4822 051 20008	CHIP JUMPER 0805
4823	©	4822 051 20008	CHIP JUMPER 0805
4824	©	4822 051 20008	CHIP JUMPER 0805
4825	©	4822 051 20008	CHIP JUMPER 0805
4826	©	4822 051 20008	CHIP JUMPER 0805
4827	©	4822 051 20008	CHIP JUMPER 0805
4828	©	4822 051 20008	CHIP JUMPER 0805
4831	©	4822 051 20008	CHIP JUMPER 0805
4832	©	4822 051 20008	CHIP JUMPER 0805
4834	©	4822 051 20008	CHIP JUMPER 0805
4835	©	4822 051 20008	CHIP JUMPER 0805
4836	©	4822 051 20008	CHIP JUMPER 0805
4838	©	4822 051 20008	CHIP JUMPER 0805
4843	©	4822 051 20008	CHIP JUMPER 0805
4845	©	4822 051 20008	CHIP JUMPER 0805
4846	©	4822 051 20008	CHIP JUMPER 0805
4847	©	4822 051 20008	CHIP JUMPER 0805
4849	©	4822 051 20008	CHIP JUMPER 0805
4856	©	4822 051 20008	CHIP JUMPER 0805
4857	©	4822 051 20008	CHIP JUMPER 0805
4858	©	4822 051 20008	CHIP JUMPER 0805
4859	©	4822 051 20008	CHIP JUMPER 0805
4860	©	4822 051 20008	CHIP JUMPER 0805
4861	©	4822 051 20008	CHIP JUMPER 0805
4862	©	4822 051 20008	CHIP JUMPER 0805
4863	©	4822 051 20008	CHIP JUMPER 0805
4864	©	4822 051 20008	CHIP JUMPER 0805
4865	©	4822 051 20008	CHIP JUMPER 0805
4867	©	4822 051 20008	CHIP JUMPER 0805
4868	©	4822 051 20008	CHIP JUMPER 0805
4869	©	4822 051 20008	CHIP JUMPER 0805
4870	©	4822 051 20008	CHIP JUMPER 0805
4876	©	4822 051 20008	CHIP JUMPER 0805
4879	©	4822 051 20008	CHIP JUMPER 0805
4884	©	4822 051 20008	CHIP JUMPER 0805
4885	©	4822 051 20008	CHIP JUMPER 0805
4886	©	4822 051 20008	CHIP JUMPER 0805
4887	©	4822 051 20008	CHIP JUMPER 0805
4890	©	4822 051 20008	CHIP JUMPER 0805
4893	©	4822 051 20008	CHIP JUMPER 0805
4894	©	4822 051 20008	CHIP JUMPER 0805
4896	©	4822 051 20008	CHIP JUMPER 0805
4897	©	4822 051 20008	CHIP JUMPER 0805

COILS

1810	2422 543 01068	RESONATOR 8MHZ
1810	4822 242 73557	CERAMIC RES. 8,46MHz
5802	4822 156 31058	FILTER DIGITAL OUT

DIODES

6871	©	4822 130 11397	BAS316
6872	©	4822 130 11397	BAS316
6873	©	4822 130 11397	BAS316
6874	©	4822 130 11397	BAS316
6875	©	9340 548 52115	BZX284-C5V1
6877	©	9322 129 34685	BZX284-C3V9
6878	©	4822 130 11397	BAS316
6879	©	9322 129 34685	BZX284-C3V9

TRANSISTORS

7812	©	5322 130 60159	BC846B
7874	©	5322 130 60159	BC846B
7875	©	5322 130 60159	BC846B

INTEGRATED CIRCUITS

7801	©	9352 622 36118	TZA1025T/V2, HF-Amplifier
7805	©	4822 209 33165	TDA1308T/N1, OPAMP
7806		4822 209 62059	TCA0372DP1, Motor driver
7807		4822 209 62059	TCA0372DP1, Motor driver
7808		4822 209 62059	TCA0372DP1, Motor driver
7821		4822 209 62059	TCA0372DP1, Motor driver
7822		4822 209 62059	TCA0372DP1, Motor driver
7873		5322 209 11306	HEF4094BT, Shift register
7876		4822 209 16143	LC89170M, CD TEXT IC
7877	©	9352 642 17557	SAA7325H/M2B Signal processor CD10

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COMBI BOARD

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Brief introduction of the Combi Board

A. TRANSFORMER PRIMARY PART

Transformer Primary Circuit provide connection for AC mains supply and primary wires of transformer.

B. POWER SUPPLY PART

Power Supply Circuit consists of rectifiers, capacitive filters and voltage regulators. Regulated voltage include +5V6, +LED, +12A, +12M, -33V, PWDN. The +C supply to the power amplifier is not regulated. F1-F2 is the ac supply voltage to the FTD Display filament.

C. SOURCE SELECT & AMPLIFIER PART

a) SHIFT REGISTER (AF CONTROL)

This shift register IC 7402 (HEF4094BP) deliver commands from the µP to control the AF functions which include source selection (A0 & A1 control lines), DSC modes , DBB, IS and CD_ON (via +CD). Other control lines such as MUTE, AMPON, STBY and PWM are coming directly from the µP on the Front board.

b) SOURCE SELECTION

One of the 4 sources, namely AUX, TAPE, TUNER, CD, can be selected via A0 & A1 lines which control the IC 7501 (HEF4052BP). Karaoke mic. mixing is connected to th e selected source before the signal is amplified with a buffer amplifier (Tr 7503 & 7504). The source signal is then split into recording path (for recording on tape) and main signal path (to the PWM volume control).

c) PWM VOLUME CONTROL

The discrete volume control makes use of 4 Transistors 7505, 7506, 7507 & 7508 (ON4986 or paired BC557B) and PWM control signal from µP. For good performance transistors for the left and right channels should be paired for gain characteristics.

d) SOUND FEATURES

Sound Features include the DBB, IS and DSC modes. The sound features are realised with a hex-inverter IC 7530 (HEF4069UBD) as analog buffer/amplifier and transistors as electronic switches controlled by the shift registers (AF control).

e) POWER AMPLIFIER

IC 7391 (AN7124) is used as power amplifier.

f) CD ON CONTROL

This circuit switches on the supply +CD supply (derived from +12A) to CD servo control, HF circuit and the laser light pen on the CD Module during the CD mode only.

g) MATRIX SURROUND OUTPUT

The matrix surround feature is provided on board. This feature is only optional on certain type version.

D. KARAOKE PART

a) SIMPLE KARAOKE

This is a 1-mic. mono amplifier using discrete components. It has a level control using a rotary potmeter. This feature is available for some version only.

E. HEADPHONE PART

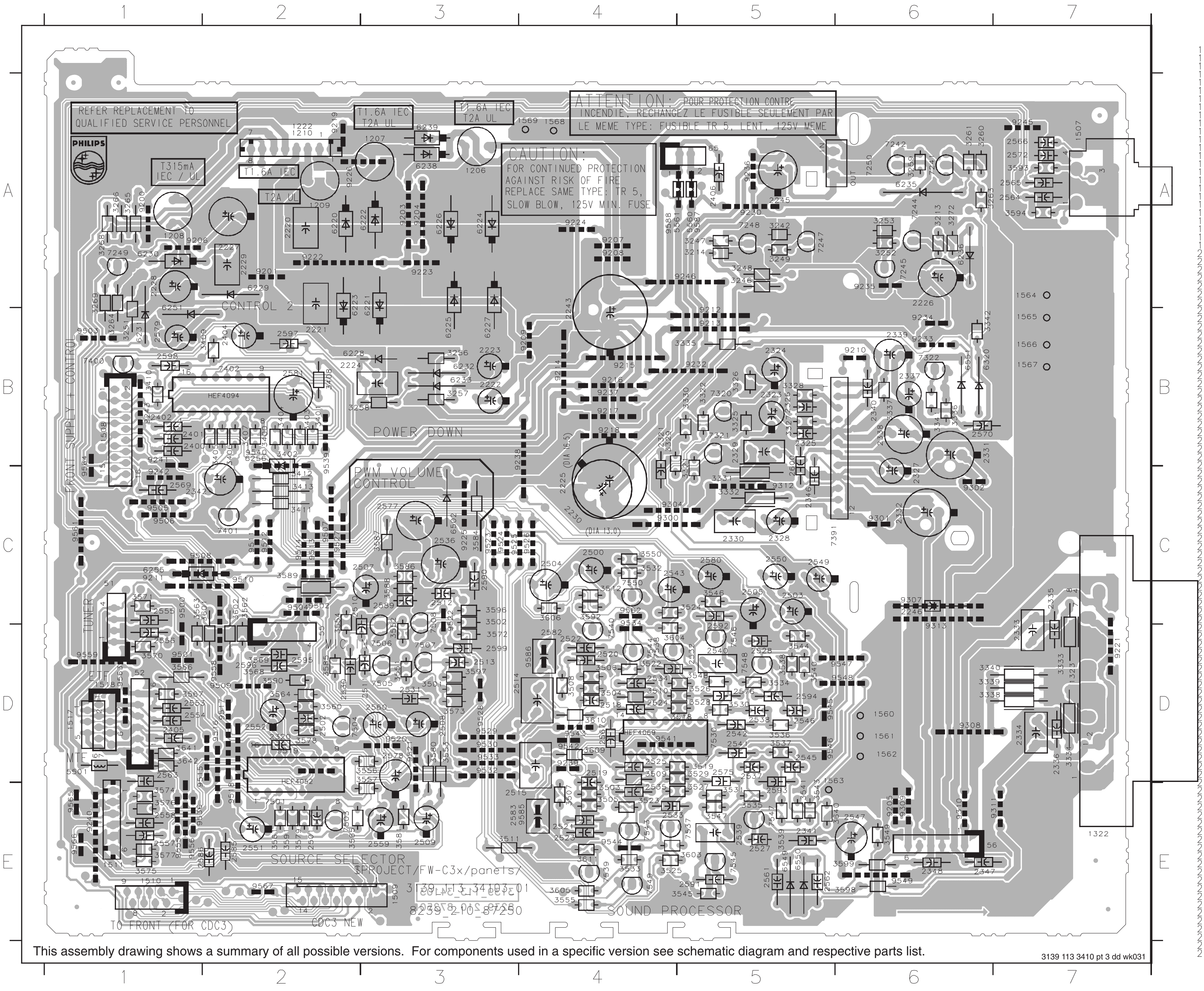
a) HEADPHONE OUTPUT

The headphone output is derived from the power amplifier output after the attenuation resistors which are tailored to deliver 25mW output power into a 32 ohm headphone.

F. CDC KEY PART

The CDC key buttons and LEDs are provided on this board.

COMPONENT LAYOUT - MAIN PART

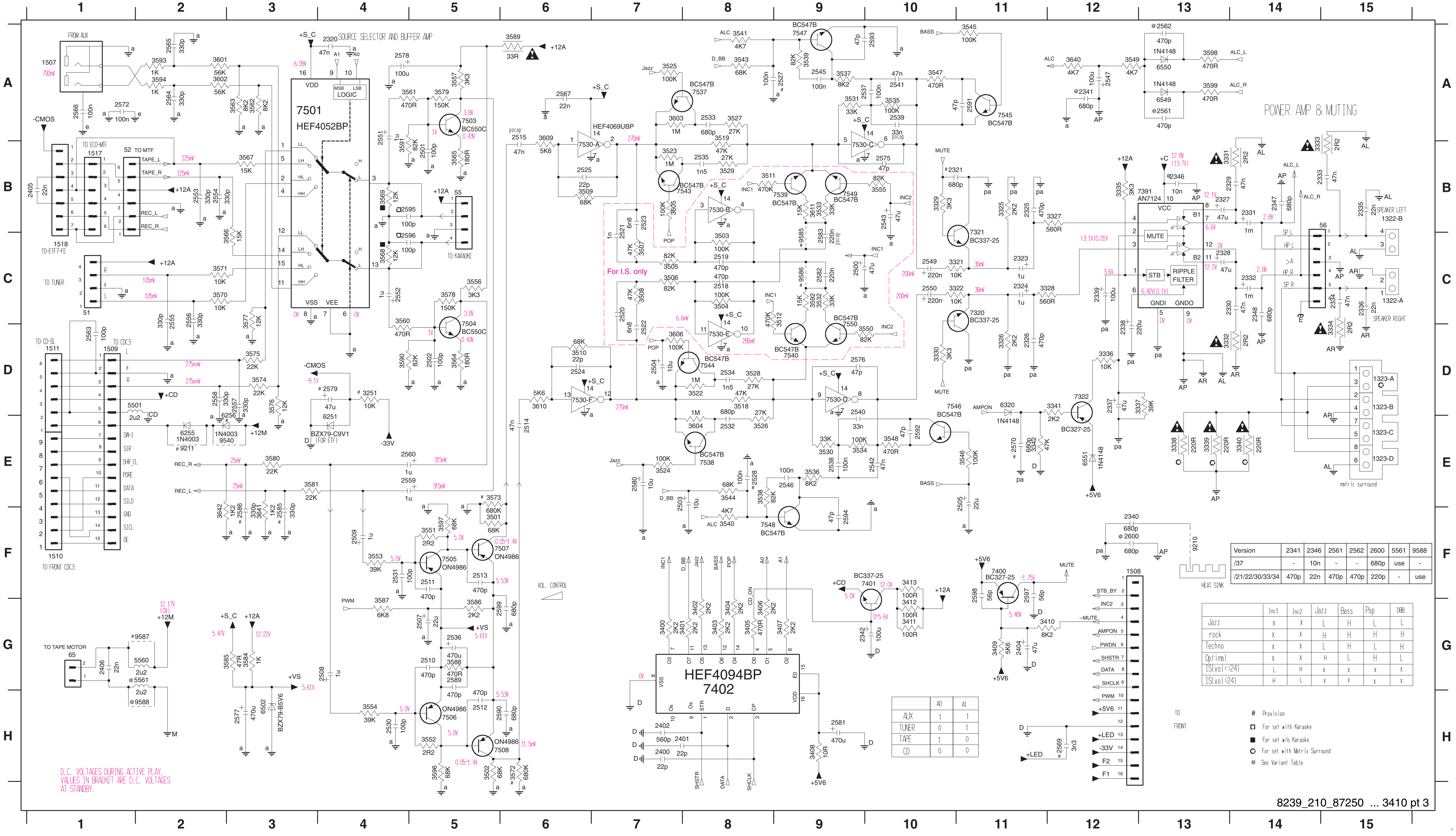

1
2
3
4
5
6
7
A
B
C
D
E
REFER REPLACEMENT TO QUALIFIED SERVICE PERSONNEL
PHILIPS
T315mA IEC / UL
T1.6A IEC
T2A UL
T1.6A IEC T2A UL
CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE SAME TYPE: TR 5, SLOW BLOW, 125V MIN. FUSE
ATTENTION: POUR PROTECTION CONTRE INCENDIE, RECHANGEZ LE FUSIBLE SEULEMENT PAR LE MEME TYPE: FUSIBLE TR 5, LENT, 125V MEME
CONTROL 2
HEF4094
POWER DOWN
PWM VOLUME CONTROL
FRONT SUPPLY + CONTROL
TUNER
HEF4052
HEF4059
SOURCE SELECTOR
SOUND PROCESSOR
$PROJECT/FW-C3x/panels/
3139 113 34103.01
8239 210 87250
TO FRONT (FOR CDC3)
CDC3 NEW
3139 113 3410 pt 3 dd wk031

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

51	C1	2549	C5	3523	E4	7248	A5	9540	B2
52	D1	2550	C5	3524	C5	7249	A1	9541	D4
55	D2	2551	E2	3525	E4	7250	A6	9542	D4
56	E6	2552	D2	3526	D5	7320	B5	9543	D4
65	A5	2553	D1	3527	E5	7321	B5	9544	E4
1206	A3	2554	D1	3528	D5	7322	B6	9545	D5
1207	A3	2555	C1	3529	D5	7391	C5	9546	D5
1208	A1	2556	D1	3530	D5	7400	B1	9547	D6
1209	A2	2557	E1	3531	E5	7401	C2	9548	D6
1210	A2	2558	E1	3532	C4	7402	B2	9549	E6
1222	A2	2559	E3	3533	E4	7501	E2	9555	E1
1322	E7	2560	D3	3534	D5	7503	E2	9556	E1
1323	D7	2561	E5	3535	E5	7504	D2	9558	D2
1507	A7	2562	E5	3536	D5	7505	D3	9559	D1
1508	B1	2563	D1	3537	D5	7506	D3	9561	C1
1509	E3	2564	A7	3538	D5	7507	D3	9562	C4
1510	E1	2565	A7	3539	E5	7508	C3	9563	D1
1511	E1	2566	A7	3540	D5	7530	D5	9564	B1
1517	D1	2567	D4	3541	E5	7537	E5	9565	E1
1518	D1	2569	C1	3543	E5	7538	D4	9566	E1
1560	D6	2570	B6	3544	D5	7539	E4	9567	E2
1561	D6	2572	A7	3545	E5	7540	D4	9585	E4
1562	D6	2575	D5	3546	C5	7543	E4	9586	D4
1563	D5	2576	D5	3547	E5	7544	D4	9587	A5
1564	A7	2577	C3	3548	D5	7545	E5	9588	A4
1565	B7	2578	D3	3549	E6	7546	D5		
1566	B7	2579	B1	3550	C4	7547	E5		
1567	B7	2580	C5	3551	D3	7548	D5		
1568	A4	2581	B2	3552	D3	7549	E4		
1569	A4	2582	D4	3553	D3	7550	C4		
2220	A2	2583	E3	3554	C2	9200	A1		
2221	B2	2585	E2	3555	E4	9201	A2		
2222	B3	2586	E1	3556	D3	9203	A3		
2223	B3	2589	C3	3557	D3	9204	A3		
2224	B2	2590	C3	3560	D2	9205	E6		
2225	C4	2591	E5	3561	E2	9206	A1		
2226	A6	2592	D5	3562	C2	9207	A4		
2227	A2	2593	E5	3563	C1	9208	A4		
2228	A1	2594	D5	3564	D2	9209	B4		
2229	A2	2595	D2	3565	E2	9210	B6		
2230	C4	2596	D2	3566	D1	9211	C1		
2243	B4	2597	B2	3567	D1	9212	B5		
2245	A5	2598	B1	3568	D2	9213	B5		
2246	C6	2599	D3	3569	D2	9214	B4		
2320	D2	2600	B5	3570	D1	9215	B4		
2321	B4	3213	A6	3571	C1	9216	B4		
2323	B5	3214	A5	3572	D3	9217	B4		
2324	B5	3242	A5	3573	D3	9218	B4		
2325	B5	3246	A5	3574	E1	9219	A2		
2326	B5	3247	A5	3575	E1	9221	D7		
2327	C6	3248	A5	3576	E1	9222	A2		
2328	C5	3249	A5	3577	E1	9223	A3		
2329	B5	3251	B1	3578	D2	9224	A4		
2330	C5	3252	A6	3579	E2	9225	C3		
2331	B6	3253	A6	3580	D3	9226	A2		
2332	C6	3256	B3	3581	E3	9230	A5		
2333	D7	3257	B3	3584	C3	9232	B5		
2334	D7	3258	B2	3585	D2	9233	B6		
2335	C7	3259	A6	3586	C3	9234	B6		
2336	D7	3260	A6	3587	C3	9235	A6		
2337	B6	3261	A6	3588	C3	9236	A5		
2338	B6	3263	A6	3589	C2	9237	B4		
2339	B6	3264	B1	3590	D2	9238	B3		
2340	B6	3265	A1	3591	E2	9239	D4		
2341	E5	3266	A1	3592	C4	9240	E1		
2342	C1	3268	A1	3593	A7	9241	B1		
2346	C5	3269	A1	3594	A7	9242	C1		
2347	E6	3272	A6	3596	C3	9243	B1		
2348	E6	3321	C5	3597	D3	9245	A7		
2400	B1	3322	B5	3598	E6	9246	A5		
2401	B1	3325	B5	3599	E6	9300	C4		
2402	B1	3326	B5	3601	C2	9301	C6		
2404	B2	3327	B5	3602	C2	9302	C6		
2405	D1	3328	B5	3603	E5	9304	C4		
2406	A5	3329	B4	3604	D4	9307	C6		
2500	C4	3330	B5	3605	E4	9308	D6		
2501	E2	3331	C5	3606	C4	9309	E6		
2502	D2	3332	C5	3609	D4	9310	E6		
2503	C5	3333	D7	3610	D4	9311	E7		
2504	C4	3334	D7	3611	E4	9312	C5		
2505	C5	3335	B5	3640	E6	9313	D6		
2507	C3	3336	B6	3641	D1	9500	C1		
2508	D3	3337	B6	3642	D1	9501	D1		
2509	E3	3338	D6	5501	D1	9502	C2		
2510	C2	3339	D6	5560	A5	9503	B1		
2511	D3	3340	D6	5561	A4	9504	C2		
2512	C3	3341	B6	6220	A2	9505	C1		
2513	D3	3342	B6	6221	A3	9506	C1		
2514	D3	3400	B2	6222	A3	9507	C2		
2515	E3	3401	B2	6223	A2	9508	C1		
2518	D4	3402	B2	6224	A3	9509	D2		
2519	D4	3403	B2	6225	B3	9510	C2		
2520	D4	3404	B2	6226	A3	9511	C2		
2521	E4	3405	B2	6227	B3	9512	C2		
2522	D4	3406	B2	6228	B2	9513	C2		
2523	E4	3407	B2	6229	A2	9514	C2		
2524	D4	3408	B2	6230	A1	9515	D1		
2525	D4	3409	B2	6231	B1	9516	D2		
2527	E5	3410	B1	6232	B3	9517	D2		
2528	D5	3411	C2	6233	B3	9518	E2		
2530	D2	3412	C2	6235	A6	9519	D2		
2531	D3	3413	C2	6236	A6	9520	D3		
2532	D5	3501	D3	6238	A3	9521	D3		
2533	E4	3502	C3	6239	A3	9522	C3		
2534	D4	3503	E4	6251	A1	9523	C3		
2535	E4	3504	D4	6255	C1	9524	C3		
2536	C3	3505	E4	6256	B2	9525	C3		
2537	D5	3506	D4	6320	B6	9526	C4		
2538	D5	3507	E4	6502	C3	9527	C2		
2539	E5	3508	D4	6549	E5	9528	D3		
2540	D5	3509	D4	6550	E5	9529	D3		
2541	D5	3510	D4	6551	B6	9530	D3		
2542	D5	3511	E3	7241	A6	9532	D3		
2543	C4	3512	C4	7242	A6	9533	D3		
2545	D5	3518	D5	7244	A6	9534	C4		
2546	D5	3519	D5	7245	A6	9536	E1		
2547	E6	3522	D4	7247	A5	9539	B2		

CIRCUIT DIAGRAM - SOURCE SELECT & AMPLIFIER PART

51 C1	1507 A1	2325 B11	2336 C15	2401 H7	2507 G5	2520 C7	2533 A8	2545 A9	2557 D3	2569 H12	2583 C9	2597 F11	3329 B10	3340 E14	3408 H9	3506 C7	3524 E7	3535 A10	3547 A10	3560 C4	3571 C2	3584 G3	3596 H5	3610 D6	6320 D11	7402 G8	7530-D D9	7547 A9
52 B1	1508 F12	2326 D11	2337 D12	2402 H7	2508 G4	2521 B7	2534 D8	2546 E9	2558 D2	2570 E11	2585 F3	2598 F11	3330 D10	3341 D12	3409 G11	3507 C7	3525 A7	3536 E9	3548 E10	3561 A5	3572 H6	3585 G3	3597 F5	3611 B9	6502 H3	7501 A3	7530-E D8	7548 F8
55 B5	1509 D1	2327 B13	2338 D12	2404 G11	2509 F4	2522 D7	2535 B8	2547 A12	2559 E4	2572 A1	2586 F3	2599 G6	3331 B13	3342 E11	3410 G12	3508 C7	3526 E8	3537 A9	3549 A12	3562 A3	3573 E5	3586 G5	3598 A13	3640 A12	6549 A13	7503 A5	7530-F D6	7549 B9
56 B15	1510 F1	2328 C13	2339 C12	2405 B1	2510 G5	2523 B7	2536 G5	2549 C10	2560 E4	2575 B10	2589 G5	2600 F12	3332 D13	3400 G7	3411 G10	3509 B6	3527 A8	3538 E8	3550 D10	3563 A3	3574 D3	3587 G4	3599 A13	3641 F3	6550 A13	7504 D5	7537 A8	7550 D9
65 G1	1511 D1	2329 B14	2340 F12	2406 G1	2511 F5	2524 D6	2537 A10	2550 C10	2561 A13	2576 D9	2590 H6	3251 D4	3333 B14	3401 G8	3412 G10	3510 D6	3528 D8	3539 A9	3551 F5	3564 D5	3575 D3	3588 G5	3601 A2	3642 F2	6551 E12	7505 F5	7538 E8	9210 F13
1322-A C15	1517 B1	2330 C14	2341 A12	2500 C9	2512 H5	2525 B6	2538 E9	2551 A4	2562 A13	2577 H3	2591 A11	3321 C11	3334 D15	3402 G8	3413 F10	3511 B8	3529 B8	3540 F8	3552 H5	3565 B5	3576 D3	3589 A6	3602 A2	5501 D1	7320 C11	7506 H5	7539 B8	9211 E2
1322-B B15	1518 C1	2331 B14	2342 G9	2501 B5	2513 F5	2527 A9	2539 A10	2552 C4	2563 D1	2578 A4	2592 E10	3322 C11	3335 B12	3403 G8	3501 F5	3512 C9	3530 E9	3541 A8	3553 F4	3566 C3	3577 C3	3590 D4	3603 A7	5560 G2	7321 C11	7507 F5	7540 D9	9540 E3
1323-A D15	2320 A4	2332 C14	2346 B13	2502 D5	2514 E6	2528 E8	2540 D9	2553 B2	2564 A2	2579 D4	2593 A10	3325 B11	3336 D12	3404 G8	3502 H5	3518 D8	3531 A9	3543 A8	3554 H4	3567 B3	3578 C5	3591 B4	3604 E8	5561 G2	7322 D12	7508 H5	7543 B7	9585 C9
1323-B D15	2321 B10	2333 B15	2347 B14	2503 E7	2515 A6	2530 H4	2541 A10	2554 B2	2565 A2	2580 E7	2594 F9	3326 D11	3337 D13	3405 G8	3503 C8	3519 A8	3532 C9	3544 E8	3555 B10	3568 C4	3579 A5	3592 C9	3605 B7	6251 E4	7391 B12	7530-A B6	7544 D8	9586 C9
1323-C E15	2323 C11	2334 C15	2348 C14	2504 D7	2518 C8	2531 F4	2542 E10	2555 C2	2566 A1	2581 H9	2595 B4	3327 B12	3338 E13	3406 G8	3504 C8	3522 D8	3533 B9	3545 A11	3556 C5	3569 B4	3580 E3	3593 A2	3606 D7	6255 E2	7400 F11	7530-B B8	7545 A11	9587 G2
1323-D E15	2324 C11	2335 B15	2400 H7	2505 E11	2519 C8	2532 E8	2543 B10	2556 C2	2567 A6	2582 C9	2596 C4	3328 C12	3339 E13	3407 G9	3505 C7	3523 B7	3534 E9	3546 E11	3557 A5	3570 C2	3581 E3	3594 A2	3609 A6	6256 E3	7401 F10	7530-C B9	7546 D11	9588 H2



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H
FROM AUX
TO ECO-MTF
TO MTF
TO TUNER
TO CD-SL
TO CDC3
TO FRONT CDC3
TO TAPE MOTOR
SOURCE SELECTOR AND BUFFER AMP
7501
HEF4052BP
VDD
LOGIC
VSS
VEE
TO KARAOKE
For I.S. only
HEF4069UBP
POWER AMP & MUTING
7391
AN7124
VCC
MUTE
STB
RIPPLE FILTER
GNDI
GNDO
SPEAKER LEFT
1322-B
SPEAKER RIGHT
1322-A
matric surround
1323-A
1323-B
1323-C
1323-D
HEAT SINK
VOL. CONTROL
HEF4094BP
7402
1508
TO
FRONT
BC547B
BC550C
BC337-25
BC327-25
ON4986
BZX79-C9V1
1N4003
1N4148

Version	2341	2346	2561	2562	2600	5561	9588
/37	-	10n	-	-	680p	use	-
/21/22/30/33/34	470p	22n	470p	470p	220p	-	use

	Inc1	Inc2	Jazz	Bass	Pop	DBB
Jazz	X	X	L	H	L	L
rock	X	X	H	H	H	H
Techno	X	X	L	H	L	H
Optimal	X	X	H	L	H	L
IS(vol<=24)	L	H	x	x	x	x
IS(vol>24)	H	L	x	x	x	x

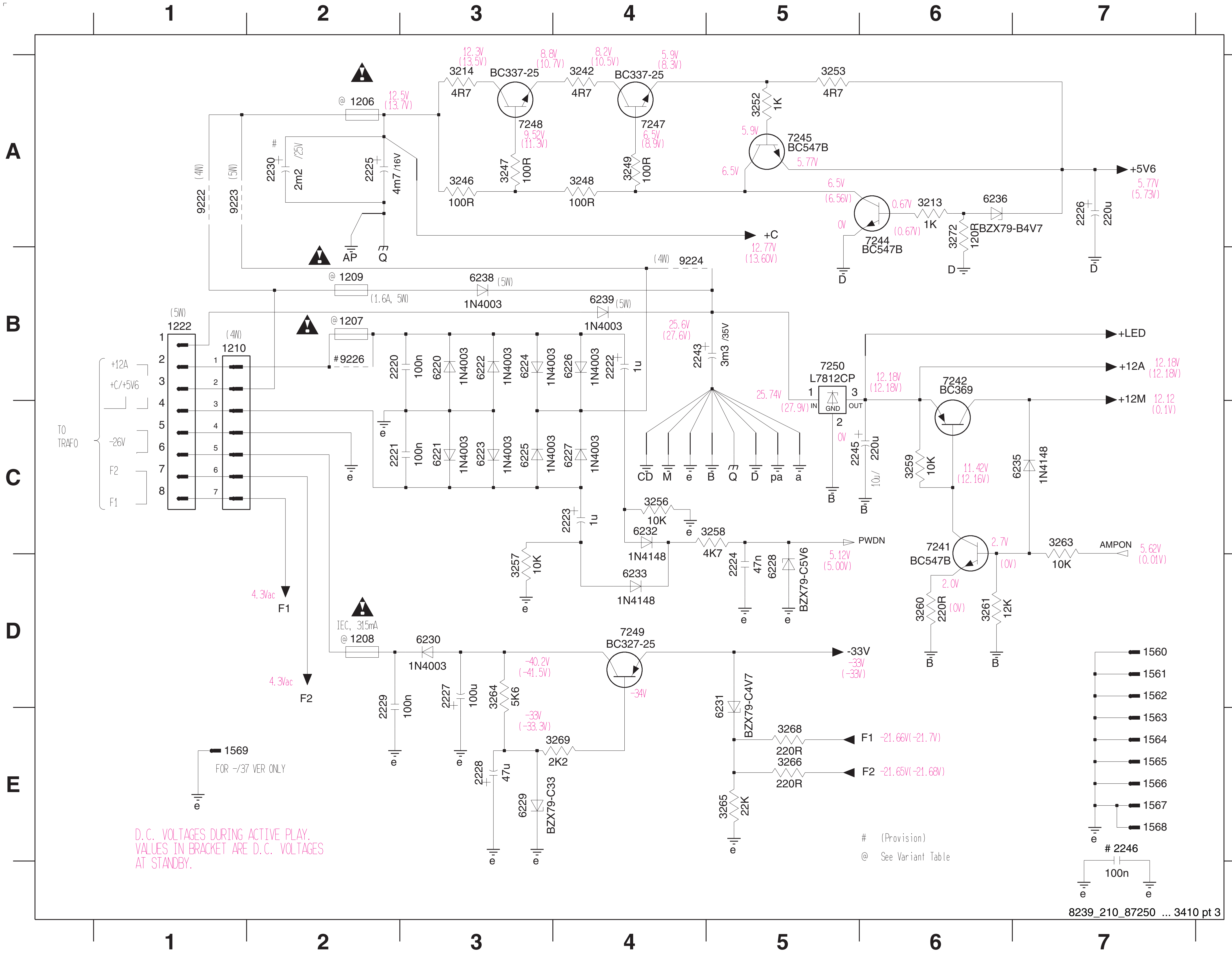
	A0	A1
AUX	1	1
TUNER	0	1
TAPE	1	0
CD	0	0

# Provision
□ For set with Karaoke
■ For set w/o Karaoke
○ For set with Matrix Surround
@ See Variant Table

D.C. VOLTAGES DURING ACTIVE PLAY.
VALUES IN BRACKET ARE D.C. VOLTAGES
AT STANDBY.

8239_210_87250 ... 3410 pt 3

CIRCUIT DIAGRAM - POWER SUPPLY PART


1
2
3
4
5
6
7
A
B
C
D
E
@ 1206
12.5V (13.7V)
3214 4R7
12.3V (13.5V)
BC337-25
8.8V (10.7V)
3242 4R7
8.2V (10.5V)
BC337-25
5.9V (8.3V)
3253 4R7
3252 1K
5.9V
7245 BC547B
5.77V
6.5V
7248
9.52V (11.3V)
3247 100R
7247
6.5V (8.9V)
3249 100R
3246 100R
3248 100R
2230 2m2 /25V
#
2225 4m7 /16V
9222 (4W)
9223 (5W)
AP
Q
+C
12.77V (13.60V)
+5V6
5.77V (5.73V)
6.5V (6.56V)
0V
7244 BC547B
0.67V
(0.67V)
3213 1K
6236
3272 120R
BZX79-B4V7
2226 220u
D
(4W) 9224
@ 1209
(1.6A, 5W)
6238 (5W)
1N4003
6239 (5W)
1N4003
@ 1207
# 9226
(5W) 1222
(4W) 1210
+12A
+C/+5V6
TO TRAFO
-26V
F2
F1
2220 100n
6220 1N4003
6222 1N4003
6224 1N4003
6226 1N4003
2222 1u
2221 100n
6221 1N4003
6223 1N4003
6225 1N4003
6227 1N4003
25.6V (27.6V)
2243 3m3 /35V
CD M e B Q D pa a
7250 L7812CP
25.74V
(27.9V)
IN GND OUT
1 2 3
0V
2245 220u 10u/
12.18V (12.18V)
+LED
+12A 12.18V (12.18V)
+12M 12.12 (0.1V)
7242 BC369
3259 10K
11.42V (12.16V)
6235 1N4148
2223 1u
3256 10K
6232 1N4148
3258 4K7
3257 10K
6233 1N4148
2224 47n
6228 BZX79-C5V6
PWDN
5.12V (5.00V)
7241 BC547B
2.7V (0V)
2.0V
3260 220R (0V)
3261 12K
3263 10K
AMPON
5.62V (0.01V)
4.3Vac F1
4.3Vac F2
IEC, 315mA @ 1208
6230 1N4003
2229 100n
2227 100u
3264 5K6
-40.2V (-41.5V)
7249 BC327-25
-34V
-33V
-33V (-33V)
-33V (-33.3V)
3269 2K2
2228 47u
6229 BZX79-C33
6231 BZX79-C4V7
3268 220R
F1 -21.66V(-21.7V)
3266 220R
F2 -21.65V(-21.68V)
3265 22K
1560
1561
1562
1563
1564
1565
1566
1567
1568
# 2246 100n
1569
FOR -/37 VER ONLY
D.C. VOLTAGES DURING ACTIVE PLAY. VALUES IN BRACKET ARE D.C. VOLTAGES AT STANDBY.
# (Provision)
@ See Variant Table
8239_210_87250 ... 3410 pt 3

1206 A2	6239 B4
1207 B2	7241 C6
1208 D2	7242 B6
1209 B2	7244 A6
1210 B1	7245 A5
1222 B1	7247 A4
1560 D7	7248 A3
1561 D7	7249 D4
1562 D7	7250 B5
1563 E7	9222 A1
1564 E7	9223 A1
1565 E7	9224 B4
1566 E7	9226 B2
1567 E7	
1568 E7	
1569 E2	
2220 B2	
2221 C2	
2222 B4	
2223 C4	
2224 D5	
2225 A2	
2226 A7	
2227 D3	
2228 E3	
2229 D2	
2230 A2	
2243 B4	
2245 C5	
2246 E7	
3213 A6	
3214 A3	
3242 A4	
3246 A3	
3247 A3	
3248 A4	
3249 A4	
3252 A5	
3253 A5	
3256 C4	
3257 D3	
3258 C5	
3259 C6	
3260 D6	
3261 D6	
3263 C7	
3264 D3	
3265 E5	
3266 E5	
3268 E5	
3269 E4	
3272 A6	
6220 B3	
6221 C3	
6222 B3	
6223 C3	
6224 B3	
6225 C3	
6226 B4	
6227 C4	
6228 D5	
6229 E3	
6230 D3	
6231 D5	
6232 C4	
6233 D4	
6235 C7	
6236 A6	
6238 B3	

CIRCUIT DIAGRAM - TRANSFORMER PRIMARY PART

1201 C1	1202 C2	1205 C2	1570 D1	3208 D1	5202 C1	9271 C1	9272 C1	9273 C2	9299 D2

TRANSFORMER PRIMARY WIRE STUFFING

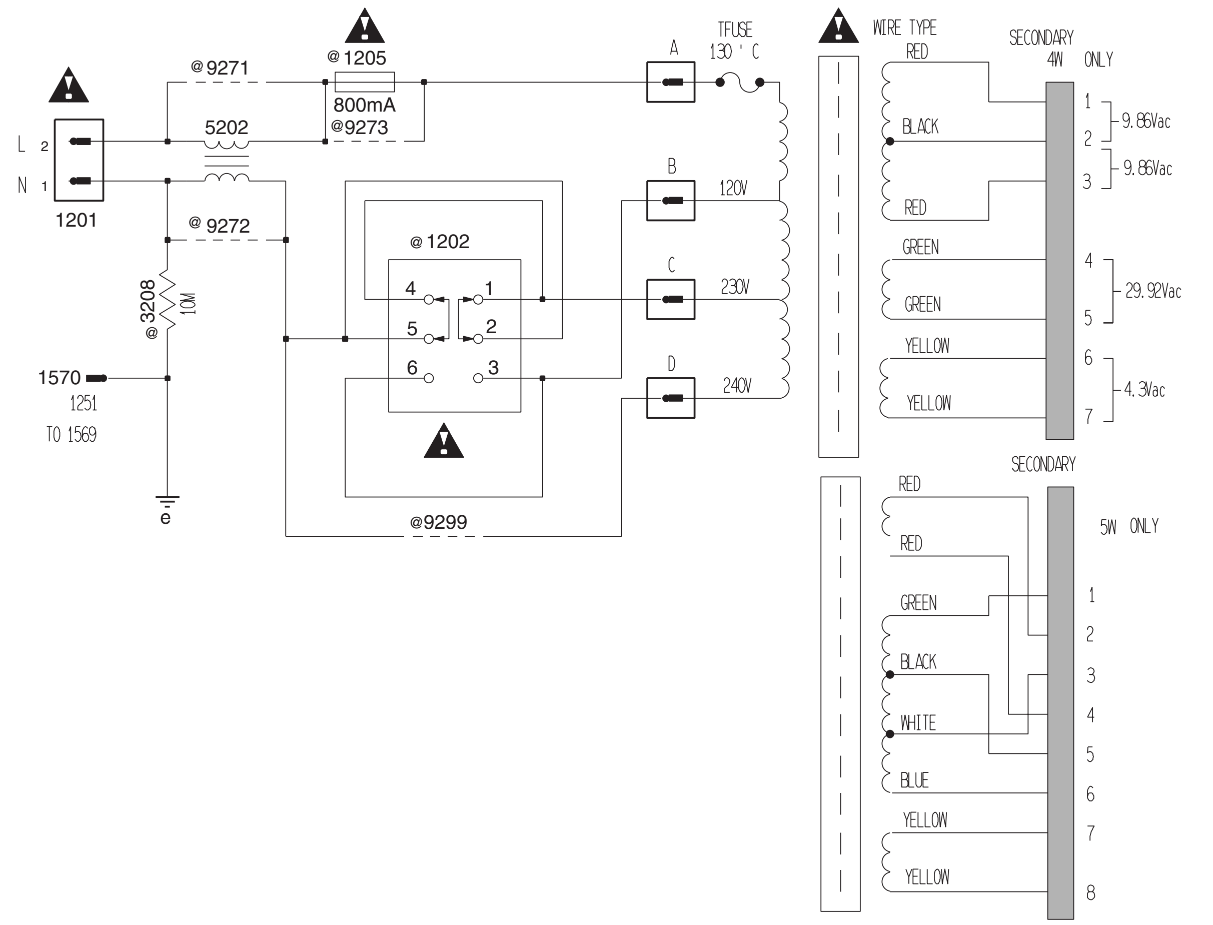
PRIMARY WIRE	A		B		C		D	
VERSION	4W	5W	4W	5W	4W	5W	4W	5W
/ 37	WHITE	-		-		-	BLACK	-
/ 21	-	BROWN	-	BLACK	-	BLUE	-	RED
/ 22 / 34	BROWN	-	-	-	-	-	BLUE	-

@ *VERSION TABLE*

(SEE SHEET 1 FOR ITEM 1206,1207,1208,1209)

VERSION	9271	9272	9273	9299	5202	1251	1202	1205	1206	1207	1208	1209	3208
/ 37	X	X	X	X	-	X	-	-	T2.0A UL	T2A, UL	315mA, UL	-	X
/ 21	-	-	-	-	X	-	X	800mA, IEC	T1.6A, IEC	T1.6A, IEC	315mA, IEC	T1.6A, IEC	-
/ 22	-	-	X	X	X	-	-	-	T1.6A, IEC	T1.6A, IEC	315mA, IEC	-	-
/ 30 #	-	-	X	X	X	-	-	-	T1.6A, IEC	T1.6A, IEC	315mA, IEC	-	-
/ 34 #	-	-	X	X	X	-	-	-	T1.6A, IEC	T1.6A, IEC	315mA, IEC	-	-

Mains Transformer



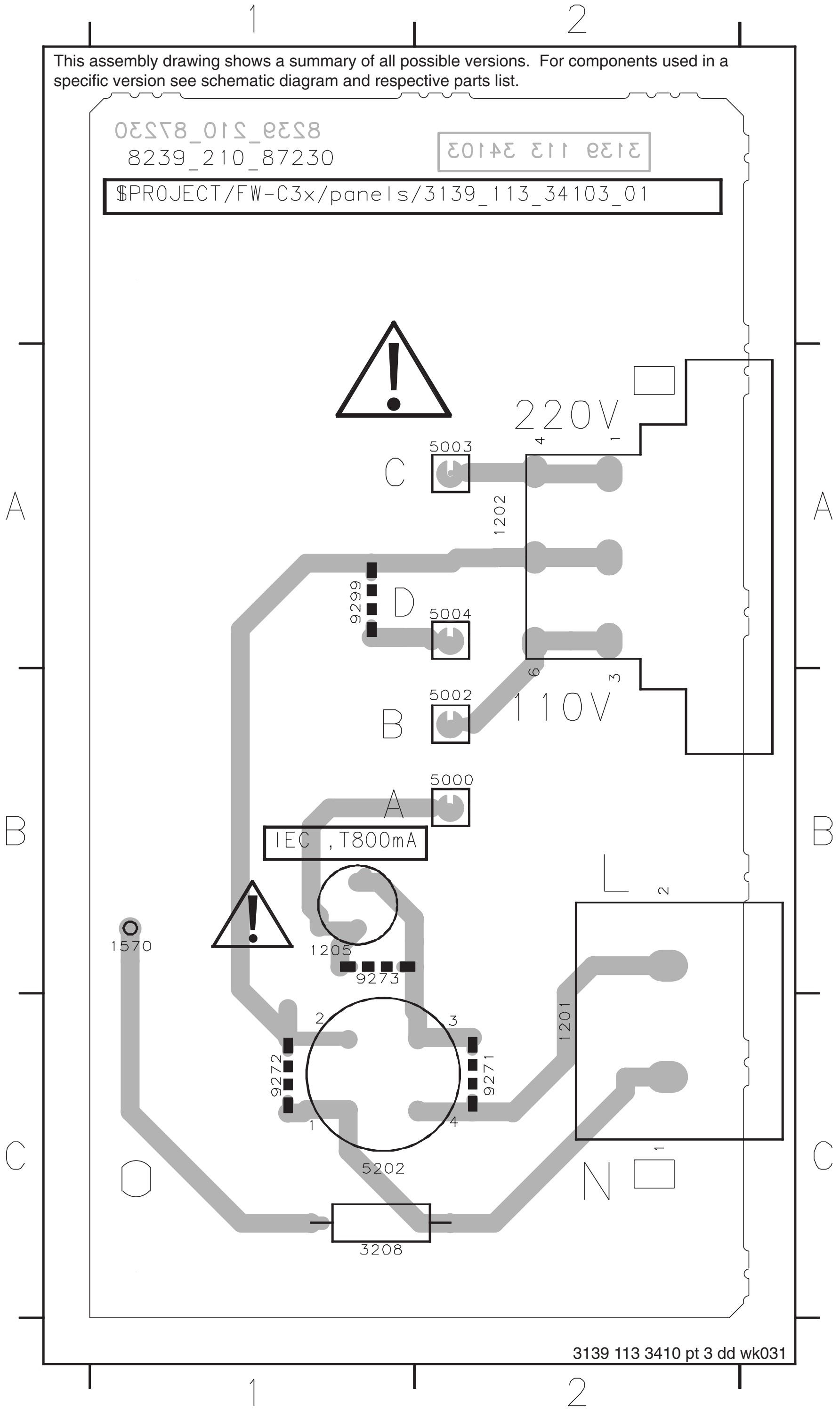
@9271
@1205
800mA
@9273
5202
L 2
N 1
1201
@9272
@1202
4
1
5
2
6
3
@3208
10M
1570
1251
TO 1569
@9299
A
TFUSE
130 ' C
B
120V
C
230V
D
240V
WIRE TYPE
RED
BLACK
RED
GREEN
GREEN
YELLOW
YELLOW
SECONDARY
4W ONLY
1
2
3
9.86Vac
9.86Vac
4
5
29.92Vac
6
7
4.3Vac
SECONDARY
5W ONLY
RED
RED
GREEN
BLACK
WHITE
BLUE
YELLOW
YELLOW
1
2
3
4
5
6
7
8

8239_210_87230 ... 3410 pt 3

COMPONENT LAYOUT - TRANSFORMER PRIMARY

1201	C2	1570	B1	5002	B2	5202	C1	9273	B1
1202	A2	3208	C1	5003	A2	9271	C2	9299	A1
1205	B1	5000	B2	5004	A2	9272	C1		

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

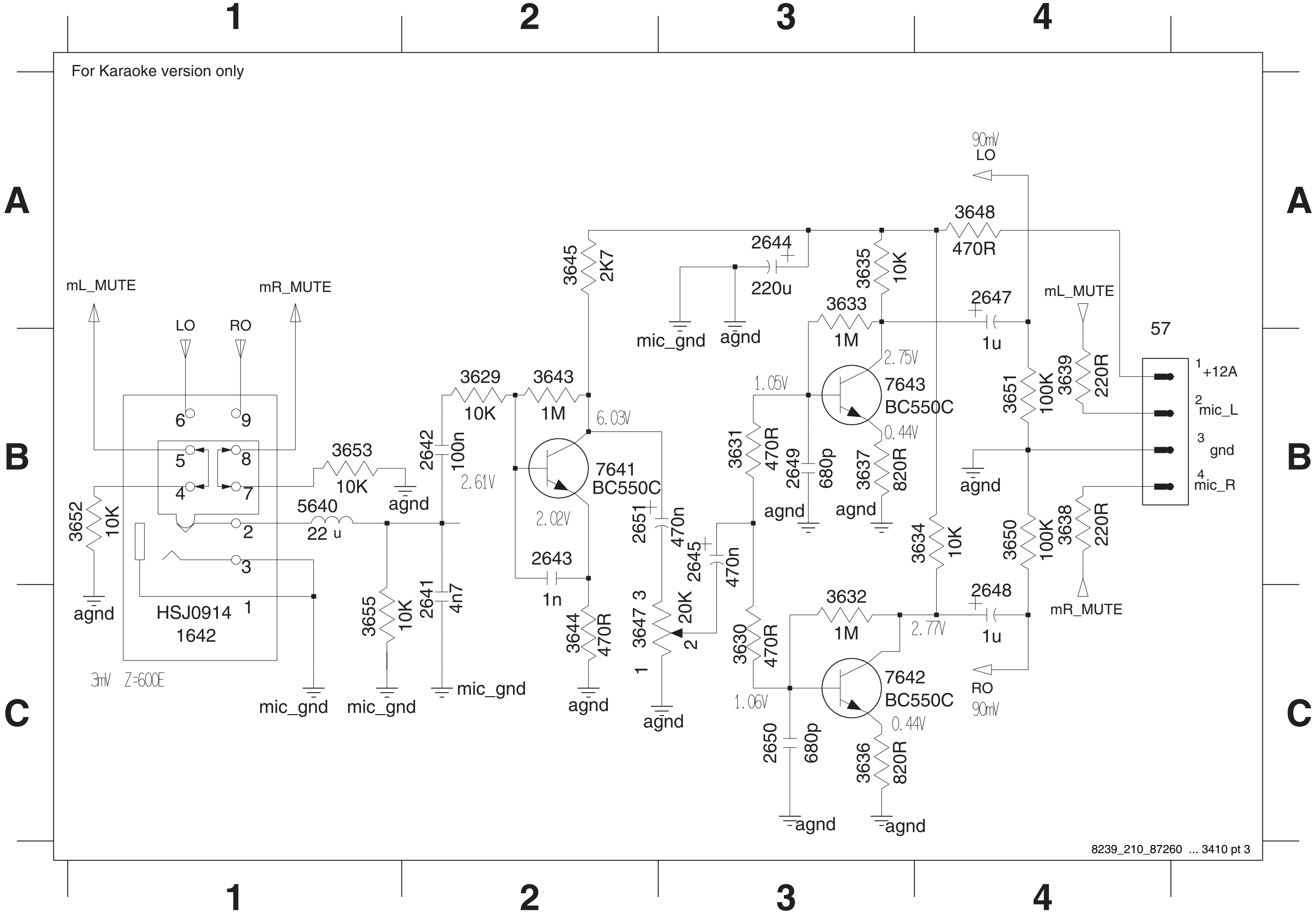


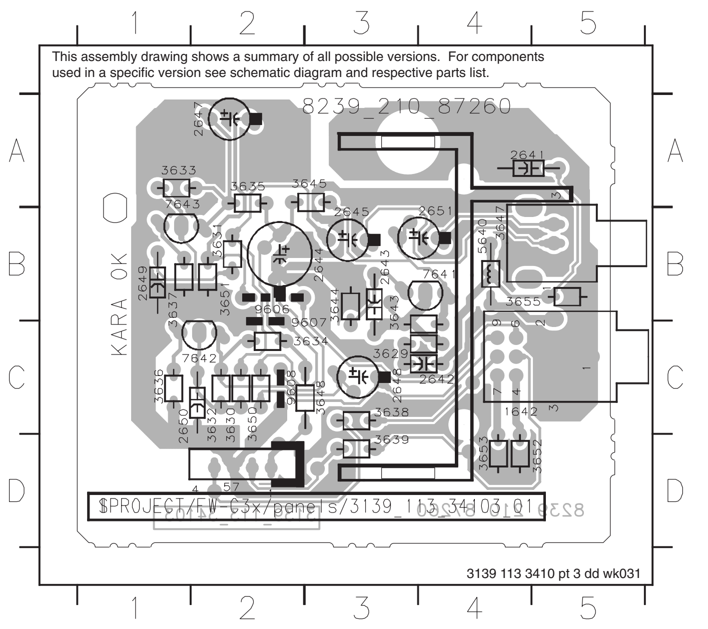
8239_210_87230
3139 113 34103
$PROJECT/FW-C3x/panels/3139_113_34103_01
220V
5003
C
1202
9299
D
5004
5002
B
110V
5000
A
IEC ,T800mA
L
1570
1205
9273
9272
9271
1201
5202
3208
N

3139 113 3410 pt 3 dd wk031

KARAOKE PART - CIRCUIT & COMPONENT LAYOUT

57 B4	2642 B2	2645 B3	2649 B3	3629 B2	3632 C3	3635 A3	3638 B4	3644 C2	3648 A4	3652 B1	5640 B1	7643 B3
1642 C1	2643 B2	2647 A4	2650 C3	3630 C3	3633 A3	3636 C3	3639 B4	3645 A2	3650 B4	3653 B1	7641 B2	
2641 C2	2644 A3	2648 C4	2651 B2	3631 B3	3634 B4	3637 B3	3643 B2	3647 C2	3651 B4	3655 C1	7642 C3	


1
2
3
4
A
B
C
For Karaoke version only
mL_MUTE
mR_MUTE
LO
RO
6
9
5
8
4
7
2
3
1
HSJ0914
1642
3mV Z=600E
3652 10K
agnd
3653 10K
5640 22 u
3655 10K
2641 4n7
2642 100n
mic_gnd
3629 10K
3643 1M
2.61V
7641 BC550C
6.03V
2.02V
2643 1n
3644 470R
3645 2K7
3647 3 20K
2651 470n
2645 470n
2644 220u
3631 470R
1.05V
2649 680p
3637 820R
3633 1M
3635 10K
2.75V
7643 BC550C
0.44V
3648 470R
90mV
2647 1u
3651 100K
3639 220R
57
1 +12A
2 mic_L
3 gnd
4 mic_R
3634 10K
3650 100K
3638 220R
3632 1M
2.77V
2648 1u
3630 470R
1.06V
7642 BC550C
2650 680p
3636 820R
8239_210_87260 ... 3410 pt 3

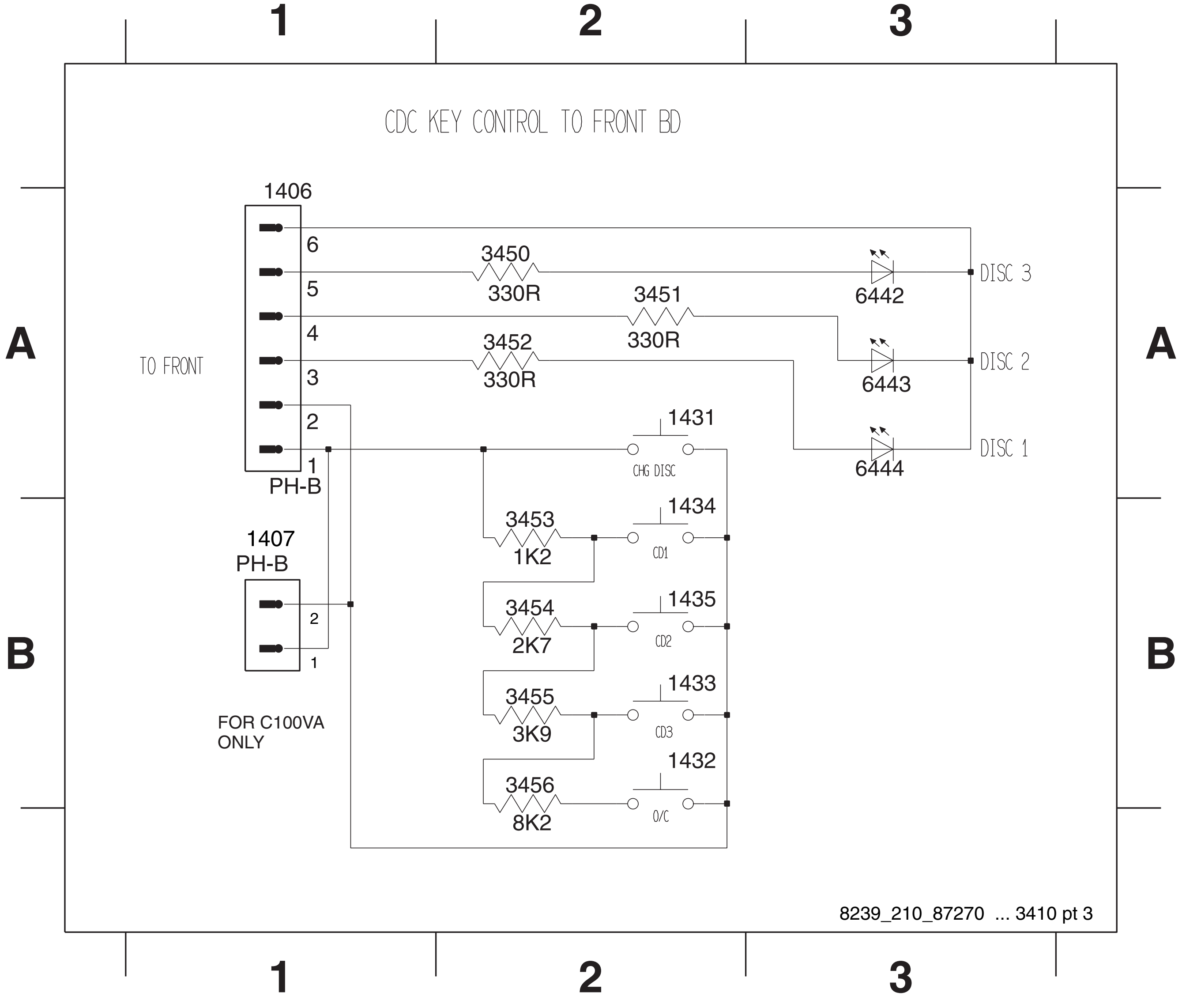

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

1
2
3
4
5
A
B
C
D
8239_210_87260
KARA OK
3139 113 3410 pt 3 dd wk031

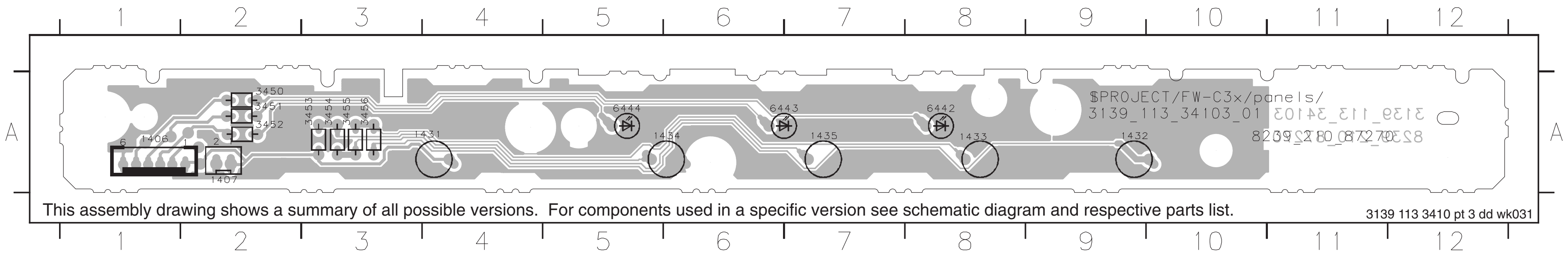
57	D2
1642	C4
2641	A4
2642	C4
2643	B3
2644	B3
2645	B3
2647	A2
2648	C3
2649	B1
2650	C1
2651	B4
3629	C3
3630	C2
3631	B2
3632	C2
3633	A1
3634	C3
3635	A2
3636	C1
3637	B1
3638	C3
3639	D3
3643	B3
3644	B3
3645	A3
3647	B4
3648	C3
3650	C2
3651	B2
3652	D5
3653	D4
3655	B4
5640	B4
7641	B4
7642	C2
7643	A1
9606	B2
9607	C3
9608	C2

CDC KEY PART - CIRCUIT & COMPONENT LAYOUT

1406 A1	1431 A2	1433 B2	1435 B2	3451 A2	3453 B2	3455 B2	6442 A3	6444 A3
1407 B1	1432 B2	1434 B2	3450 A2	3452 A2	3454 B2	3456 B2	6443 A3	


CDC KEY CONTROL TO FRONT BD
1406
6
5
4
3
2
1
PH-B
TO FRONT
3450
330R
3451
330R
3452
330R
6442
6443
6444
DISC 3
DISC 2
DISC 1
1431
CHG DISC
1434
CD1
3453
1K2
1435
CD2
3454
2K7
1433
CD3
3455
3K9
1432
O/C
3456
8K2
1407
PH-B
2
1
FOR C100VA ONLY
8239_210_87270 ... 3410 pt 3
1 2 3
A B

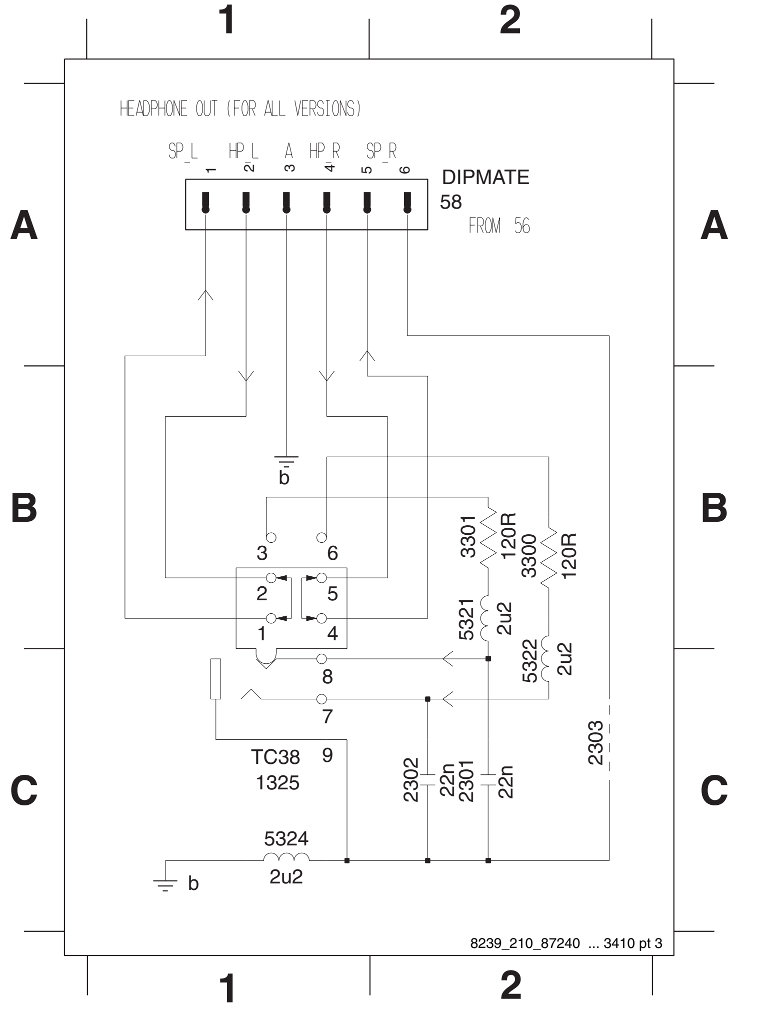
1406 A1	1407 A2	1431 A4	1432 A9	1433 A8	1434 A6	1435 A7	3450 A2	3451 A2	3452 A2	3453 A3	3454 A3	3455 A3	3456 A3	6442 A8	6443 A6	6444 A5	

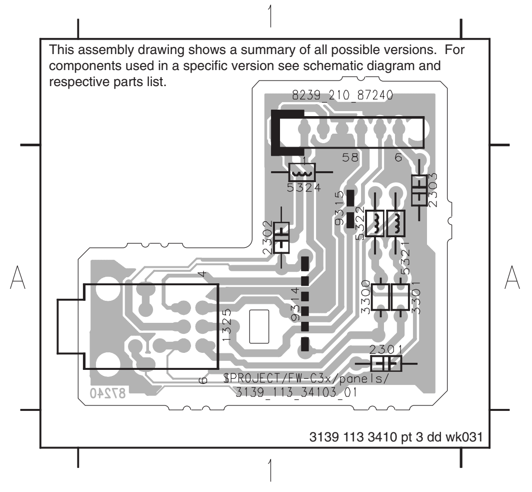

1 2 3 4 5 6 7 8 9 10 11 12
A
1406
6
2
1407
3450
3451
3452
3453
3454
3455
3456
6444
6443
6442
1431
1434
1435
1433
1432
$PROJECT/FW-C3x/panels/
3139_113_34103_01
8239_210_87270
3139 113 3410 pt 3 dd wk031

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

HEADPHONE PART - CIRCUIT & COMPONENT LAYOUT

58 A2	2301 C2	2303 C2	3301 B2	5322 C2
1325 C1	2302 C2	3300 B2	5321 B2	5324 C1


HEADPHONE OUT (FOR ALL VERSIONS)
SP_L
HP L
A
HP R
SP R
1 2 3 4 5 6
DIPMATE
58
FROM 56
b
3
6
2
5
1
4
8
7
9
TC38
1325
3301
120R
3300
120R
5321
2u2
5322
2u2
2302
22n
2301
22n
2303
5324
2u2
b
8239_210_87240 ... 3410 pt 3
1 2
A B C


1
A
8239_210_87240
58
6
5324
2302
2303
5321
3300
3301
2301
1325
$PROJECT/FW-C3x/panels/
3139_113_34103_01
87240
3139 113 3410 pt 3 dd wk031

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

58	A1
1325	A1
2301	A1
2302	A1
2303	A1
3300	A1
3301	A1
5321	A1
5322	A1
5324	A1
9314	A1
9315	A1

ELECTRICAL PARTS LIST - COMBI BOARD

MISCELLANEOUS

1201	4822 265 31015 ⚠	Mains Socket
1201	4822 265 31016 ⚠	Mains Socket /37
1202	4822 272 10269 ⚠	Voltage Selector /21/21M
1205	4822 071 58001 ⚠	Fuse T800mA 250V /21/21M
1206	4822 071 51602 ⚠	Fuse T1.6A 250V
1206	4822 253 10128 ⚠	Fuse T2A 250V /37
1207	4822 071 51602 ⚠	Fuse T1.6A 250V
1207	4822 253 10128 ⚠	Fuse T2A 250V /37
1208	4822 071 53151 ⚠	Fuse T315mA 250V
1208	4822 252 51151 ⚠	Fuse T315mA 250V /37
1209	4822 071 51602 ⚠	Fuse T1.6A 250V /21/21M
1322	4822 267 31176	Loudspeaker Socket
1325	4822 265 11529	Headphone Socket
1431	4822 276 13775	Tact Switch
1432	4822 276 13775	Tact Switch
1433	4822 276 13775	Tact Switch
1434	4822 276 13775	Tact Switch
1435	4822 276 13775	Tact Switch
1507	4822 265 20553	Aux-in Socket
1508	2422 025 14526	Flex Socket 16pin Vert.
1509	4822 265 10981	Flex Socket 15pin Vert.
1510	2422 025 14518	Flex Socket 9pin Vert.
1517	4822 267 10731	Flex Socket 6pin Vert.

CAPACITORS

2220	5322 121 42386	100nF 5% 63V
2221	5322 121 42386	100nF 5% 63V
2222	4822 124 21913	1µF 20% 63V
2223	4822 124 21913	1µF 20% 63V
2224	4822 121 51399	47nF 10% 50V
2225	4822 124 11878	4700µF 16V
2226	4822 124 80144	220µF 20% 25V
2227	4822 124 40255	100µF 20% 63V
2228	4822 124 41751	47µF 20% 50V
2229	5322 121 42386	100nF 5% 63V
2243	4822 124 42367	3300µF 20% 35V
2245	4822 124 80144	220µF 20% 25V
2301	4822 126 11585	22nF +80/-20% 25V
2302	4822 126 11585	22nF +80/-20% 25V
2320	4822 126 12785	47nF 50V
2323	4822 124 21913	1µF 20% 63V
2324	4822 124 21913	1µF 20% 63V
2325	4822 122 33519	470pF 10% 50V
2326	4822 122 33519	470pF 10% 50V
2327	4822 124 40433	47µF 20% 25V
2328	4822 124 40433	47µF 20% 25V
2329	4822 121 51399	47nF 10% 50V
2330	4822 121 51399	47nF 10% 50V
2331	4822 124 81144	1000µF 20% 16V
2332	4822 124 81144	1000µF 20% 16V
2333	4822 121 51399	47nF 10% 50V
2334	4822 121 51399	47nF 10% 50V
2335	4822 126 11585	22nF +80/-20% 25V
2336	4822 126 11585	22nF +80/-20% 25V
2337	4822 124 40433	47µF 20% 25V
2338	4822 124 80144	220µF 20% 25V
2339	4822 124 40207	100µF 20% 25V
2340	4822 126 14316	680pF 10% 50V
2341	4822 122 33519	470pF 10% 50V except /37
2342	4822 124 40207	100µF 20% 25V
2346	4822 126 11585	22nF +80/-20% 25V
2346	4822 121 51387	10nF 20% 16V /37
2347	4822 126 14316	680pF 10% 50V
2348	4822 126 14316	680pF 10% 50V
2400	4822 122 33191	22pF 5% 50V
2401	4822 122 33191	22pF 5% 50V
2402	4822 122 10459	560pF 10% 50V
2404	4822 124 40433	47µF 20% 25V
2405	4822 126 11585	22nF +80/-20% 25V
2406	4822 126 11585	22nF +80/-20% 25V
2501	4822 122 33195	100pF 10% 50V
2502	4822 122 33195	100pF 10% 50V
2503	4822 124 40248	10µF 20% 63V
2504	4822 124 40248	10µF 20% 63V
2505	4822 124 81151	22µF 20% 50V
2507	4822 124 81151	22µF 20% 50V
2508	4822 124 21913	1µF 20% 63V
2509	4822 124 21913	1µF 20% 63V
2510	4822 122 33519	470pF 10% 50V
2511	4822 122 33519	470pF 10% 50V
2512	4822 122 33519	470pF 10% 50V
2513	4822 122 33519	470pF 10% 50V
2514	4822 121 51399	47nF 10% 50V
2515	4822 121 51399	47nF 10% 50V
2518	4822 122 33519	470pF 10% 50V
2519	4822 122 33519	470pF 10% 50V
2524	4822 122 33191	22pF 5% 50V
2525	4822 122 33191	22pF 5% 50V
2530	4822 122 33195	100pF 10% 50V
2531	4822 122 33195	100pF 10% 50V
2532	4822 126 14316	680pF 10% 50V
2533	4822 126 14316	680pF 10% 50V
2534	4822 126 12878	1,5nF 10% 16V
2535	4822 126 12878	1,5nF 10% 16V
2536	4822 124 80791	470µF 20% 16V
2537	4822 126 12882	100nF +80/-20% 50V
2538	4822 126 12882	100nF +80/-20% 50V
2539	4822 121 42476	33nF 10% 50V
2540	4822 121 42476	33nF 10% 50V
2541	4822 126 12785	47nF +80/-20% 50V
2542	4822 126 12785	47nF +80/-20% 50V
2545	4822 126 12882	100nF +80/-20% 50V
2546	4822 126 12882	100nF +80/-20% 50V
2547	4822 124 41584	100µF 20% 10V

ELECTRICAL PARTS LIST - COMBI BOARD

2549	4822 124 40746	0,22µF 20% 63V
2550	4822 124 40746	0,22µF 20% 63V
2551	4822 124 21913	1µF 20% 63V
2552	4822 124 21913	1µF 20% 63V
2553	4822 126 12787	330pF 10% 50V
2554	4822 126 12787	330pF 10% 50V
2555	4822 126 12787	330pF 10% 50V
2556	4822 126 12787	330pF 10% 50V
2557	4822 126 12787	330pF 10% 50V
2558	4822 126 12787	330pF 10% 50V
2559	4822 124 21913	1µF 20% 63V
2560	4822 124 21913	1µF 20% 63V
2561	4822 122 33519	470pF 10% 50V except /37
2562	4822 122 33519	470pF 10% 50V except /37
2563	4822 122 33195	100pF 10% 50V
2564	4822 126 12787	330pF 10% 50V
2565	4822 126 12787	330pF 10% 50V
2566	4822 126 12882	100nF +80/-20% 50V
2567	4822 126 11585	22nF +80/-20% 25V
2572	4822 126 12882	100nF +80/-20% 50V
2575	4822 122 33848	47pF 5% 50V
2576	4822 122 33848	47pF 5% 50V
2577	4822 124 80791	470µF 20% 16V
2578	4822 124 40207	100µF 20% 25V
2580	4822 124 40248	10µF 20% 63V
2581	4822 124 80195	470µF 20% 10V
2589	4822 122 33519	470pF 10% 50V
2590	4822 126 14316	680pF 10% 50V
2591	4822 122 33848	47pF 5% 50V
2592	4822 122 33848	47pF 5% 50V
2593	4822 122 33848	47pF 5% 50V
2594	4822 122 33848	47pF 5% 50V
2597	4822 122 10573	56pF 5% 50V
2598	4822 122 10573	56pF 5% 50V
2598	4822 122 33848	47pF 5% 50V /37
2599	4822 126 14316	680pF 10% 50V
2600	4822 122 10466	220pF 10% 50V
2600	4822 126 14316	680pF 10% 50V /37
9313	4822 126 11585	22nF +80/-20% 25V

RESISTORS

3208	4822 053 21106	10M 5% 0,5W /37
3213	4822 050 11002	1k 1% 0,4W
3214	4822 050 24708	4R7 1% 0,6W
3242	4822 050 24708	4R7 1% 0,6W
3246	4822 116 52175	100R 5% 0,5W
3247	4822 116 52175	100R 5% 0,5W
3248	4822 116 52175	100R 5% 0,5W
3249	4822 116 52175	100R 5% 0,5W
3252	4822 050 11002	1k 1% 0,4W
3253	4822 050 24708	4R7 1% 0,6W
3256	4822 050 21003	10k 1% 0,6W
3257	4822 050 21003	10k 1% 0,6W
3258	4822 116 52283	4k7 5% 0,5W
3259	4822 050 21003	10k 1% 0,6W
3260	4822 116 83872	220R 5% 0,5W
3261	4822 116 52238	12k 5% 0,5W
3263	4822 050 21003	10k 1% 0,6W
3264	4822 116 52289	5k6 5% 0,5W
3265	4822 116 52257	22k 5% 0,5W
3266	4822 116 83872	220R 5% 0,5W
3268	4822 116 83872	220R 5% 0,5W
3269	4822 116 52256	2k2 5% 0,5W
3272	4822 116 52206	120R 5% 0,5W
3300	4822 116 52206	120R 5% 0,5W
3301	4822 116 52206	120R 5% 0,5W
3321	4822 050 21003	10k 1% 0,6W
3322	4822 050 21003	10k 1% 0,6W
3325	4822 116 52256	2k2 5% 0,5W
3326	4822 116 52256	2k2 5% 0,5W
3327	4822 116 52226	560R 5% 0,5W
3328	4822 116 52226	560R 5% 0,5W
3329	4822 116 52269	3k3 5% 0,5W
3330	4822 116 52269	3k3 5% 0,5W
3331	4822 052 10228 ⚠	2R2 5% 0,33W
3332	4822 052 10228 ⚠	2R2 5% 0,33W
3333	4822 052 10228 ⚠	2R2 5% 0,33W
3334	4822 052 10228 ⚠	2R2 5% 0,33W
3335	4822 116 52269	3k3 5% 0,5W
3336	4822 050 21003	10k 1% 0,6W
3337	4822 116 83882	39k 5% 0,5W
3341	4822 116 52256	2k2 5% 0,5W
3342	4822 116 83884	47k 5% 0,5W
3400	4822 116 52256	2k2 5% 0,5W
3401	4822 116 52256	2k2 5% 0,5W
3402	4822 116 52256	2k2 5% 0,5W
3403	4822 116 52256	2k2 5% 0,5W
3404	4822 116 52256	2k2 5% 0,5W
3405	4822 116 83883	470R 5% 0,5W
3406	4822 116 52256	2k2 5% 0,5W
3407	4822 116 52256	2k2 5% 0,5W
3408	4822 116 52176	10R 5% 0,5W
3409	4822 116 52289	5k6 5% 0,5W
3410	4822 116 52303	8k2 5% 0,5W
3411	4822 116 52175	100R 5% 0,5W
3412	4822 116 52175	100R 5% 0,5W
3413	4822 116 52175	100R 5% 0,5W
3453	4822 116 52207	1k2 5% 0,5W
3454	4822 116 52256	2k2 5% 0,5W
3455	4822 116 52276	3k9 5% 0,5W
3456	4822 116 52303	8k2 5% 0,5W
3501	4822 116 52297	68k 5% 0,5W
3502	4822 116 52297	68k 5% 0,5W
3509	4822 116 52297	68k 5% 0,5W

ELECTRICAL PARTS LIST - COMBI BOARD

RESISTORS

3510	4822 116 52297	68k 5% 0,5W
3518	4822 116 83884	47k 5% 0,5W
3519	4822 116 83884	47k 5% 0,5W
3522	4822 116 83866	1M 5% 0,5W
3523	4822 116 83866	1M 5% 0,5W
3524	4822 116 52234	100k 5% 0,5W
3525	4822 116 52234	100k 5% 0,5W
3526	4822 116 52264	27k 5% 0,5W
3527	4822 116 52264	27k 5% 0,5W
3528	4822 116 52264	27k 5% 0,5W
3529	4822 116 52264	27k 5% 0,5W
3530	4822 050 23303	33k 1% 0,6W
3531	4822 050 23303	33k 1% 0,6W
3534	4822 116 52234	100k 5% 0,5W
3535	4822 116 52234	100k 5% 0,5W
3536	4822 116 52303	8k2 5% 0,5W
3537	4822 116 52303	8k2 5% 0,5W
3538	4822 116 52304	82k 5% 0,5W
3539	4822 116 52304	82k 5% 0,5W
3540	4822 116 52283	4k7 5% 0,5W
3541	4822 116 52283	4k7 5% 0,5W
3543	4822 116 52297	68k 5% 0,5W
3544	4822 116 52297	68k 5% 0,5W
3545	4822 116 52234	100k 5% 0,5W
3546	4822 116 52234	100k 5% 0,5W
3547	4822 116 83883	470R 5% 0,5W
3548	4822 116 83883	470R 5% 0,5W
3549	4822 116 52283	4k7 5% 0,5W
3551	4822 116 81154	2R2 5% 0,5W
3552	4822 116 81154	2R2 5% 0,5W
3553	4822 116 83882	39k 5% 0,5W
3554	4822 116 83882	39k 5% 0,5W
3556	4822 116 52269	3k3 5% 0,5W
3557	4822 116 52269	3k3 5% 0,5W
3560	4822 116 83883	470R 5% 0,5W
3561	4822 116 83883	470R 5% 0,5W
3562	4822 050 21003	10k 1% 0,6W /21/21M
3562	4822 116 52303	8k2 1% 0,6W
3563	4822 050 21003	10k 1% 0,6W /21/21M
3563	4822 116 52303	8k2 1% 0,6W
3564	4822 116 52213	180R 5% 0,5W
3565	4822 116 52213	180R 5% 0,5W
3566	4822 050 21003	10k 1% 0,6W /21/21M
3566	4822 116 52244	15k 1% 0,6W
3567	4822 050 21003	10k 1% 0,6W /21/21M
3567	4822 116 52244	15k 1% 0,6W
3568	4822 116 52238	12k 5% 0,5W
3569	4822 116 52238	12k 5% 0,5W
3570	4822 116 52289	5k6 5% 0,5W /21/21M
3570	4822 050 21003	10k 1% 0,6W
3571	4822 116 52289	5k6 5% 0,5W /21/21M
3571	4822 050 21003	10k 1% 0,6W
3574	4822 116 52257	22k 5% 0,5W
3575	4822 116 52257	22k 5% 0,5W
3576	4822 116 52244	15k 5% 0,5W /21/21M
3576	4822 116 52238	12k 5% 0,5W
3577	4822 116 52244	15k 5% 0,5W /21/21M
3577	4822 116 52238	12k 5% 0,5W
3578	4822 116 52245	150k 5% 0,5W
3579	4822 116 52245	150k 5% 0,5W
3580	4822 116 52257	22k 5% 0,5W
3581	4822 116 52257	22k 5% 0,5W
3584	4822 050 11002	1k 1% 0,4W
3585	4822 116 52195	47R 5% 0,5W
3586	4822 116 52256	2k2 5% 0,5W
3587	4822 116 83961	6k8 5% 0,5W
3588	4822 116 83883	470R 5% 0,5W
3589	4822 052 10339 ⚠	33R 5% 0,33W
3590	4822 116 52304	82k 5% 0,5W
3591	4822 116 52304	82k 5% 0,5W
3593	4822 050 11002	1k 1% 0,4W
3594	4822 050 11002	1k 1% 0,4W
3596	4822 116 52297	68k 5% 0,5W
3597	4822 116 52297	68k 5% 0,5W
3598	4822 116 83883	470R 5% 0,5W
3599	4822 116 83883	470R 5% 0,5W
3601	4822 116 83884	47k 5% 0,5W /21/21M
3601	4822 116 52291	56k 5% 0,5W
3602	4822 116 83884	47k 5% 0,5W /21/21M
3602	4822 116 52291	56k 5% 0,5W
3603	4822 116 83866	1M 5% 0,5W
3604	4822 116 83866	1M 5% 0,5W
3605	4822 116 52234	100k 5% 0,5W
3606	4822 116 52234	100k 5% 0,5W
3609	4822 116 52289	5k6 5% 0,5W
3610	4822 116 52289	5k6 5% 0,5W
3640	4822 116 52283	4k7 5% 0,5W
3641	4822 116 52207	1k2 5% 0,5W
3642	4822 116 52207	1k2 5% 0,5W

COILS & FILTERS

5202	4822 157 11832	Choke Coil 400µH except /37
5321	4822 157 11477	Coil 2,2µH 5%
5322	4822 157 11477	Coil 2,2µH 5%
5324	4822 157 11477	Coil 2,2µH 5%
5501	4822 157 11477	Coil 2,2µH 5%
5560	4822 157 11477	Coil 2,2µH 5%
5561	4822 157 11477	Coil 2,2µH 5% /37

DIODES

6220	4822 130 31878	1N4003G
6221	4822 130 31878	1N4003G
6222	4822 130 31878	1N4003G
6223	4822 130 31878	1N4003G

ELECTRICAL PARTS LIST - COMBI BOARD

DIODES

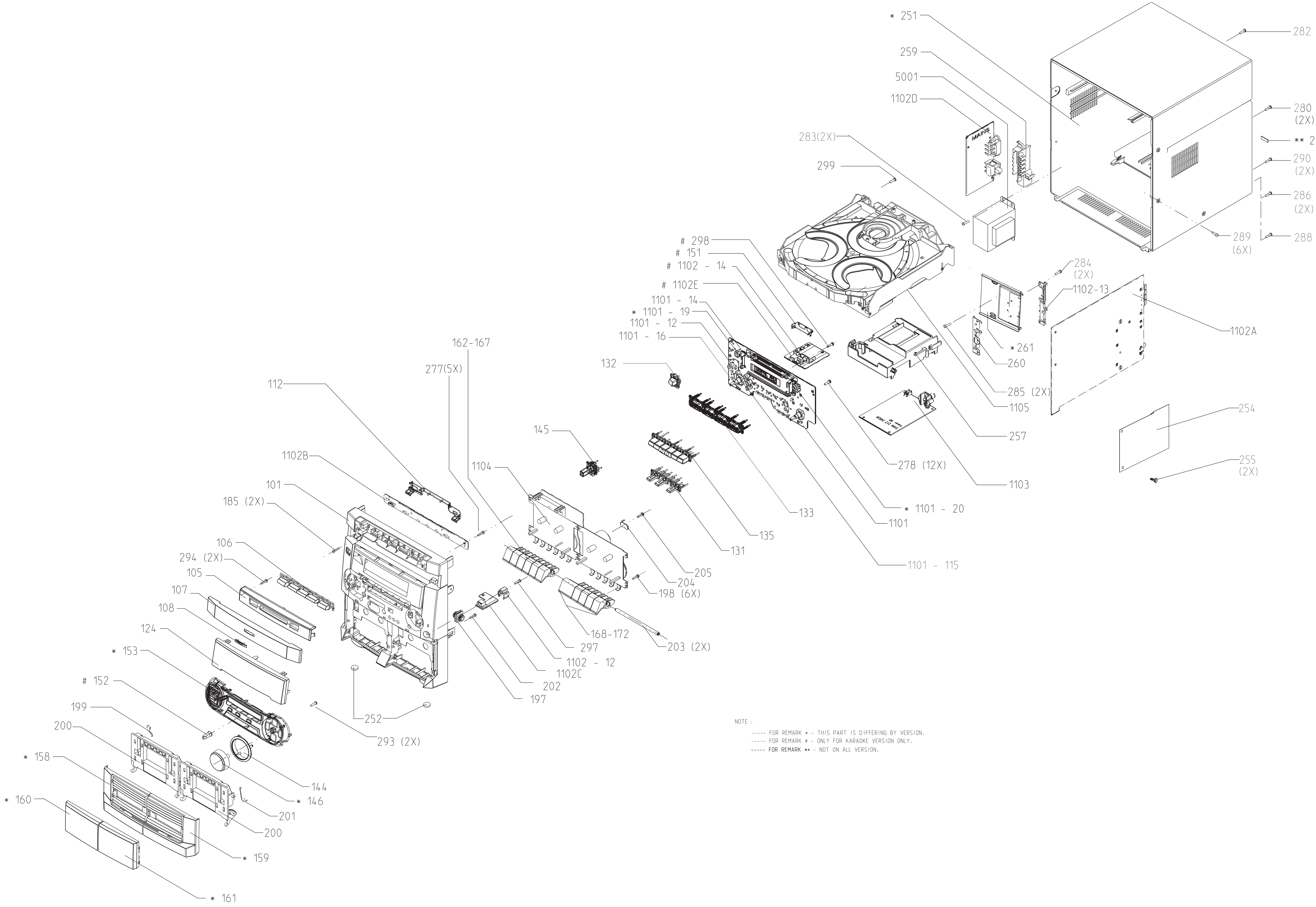
6224	4822 130 31878	1N4003G
6225	4822 130 31878	1N4003G
6226	4822 130 31878	1N4003G
6227	4822 130 31878	1N4003G
6228	4822 130 34173	BZX79-B5V6
6229	4822 130 34142	BZX79-B33
6230	4822 130 31878	1N4003G
6231	4822 130 34174	BZX79-B4V7
6232	4822 130 30621	1N4148
6233	4822 130 30621	1N4148
6235	4822 130 30621	1N4148
6236	4822 130 34174	BZX79-B4V7
6238	4822 130 31878	1N4003G /21/21M
6239	4822 130 31878	1N4003G /21/21M
6255	4822 130 31878	1N4003G
6320	4822 130 30621	1N4148
6502	4822 130 34173	BZX79-B5V6
6549	4822 130 30621	1N4148
6550	4822 130 30621	1N4148
6551	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7241	4822 130 40959	BC547B
7242	5322 130 44593	BC369
7244	4822 130 40959	BC547B
7245	4822 130 40959	BC547B
7247	4822 130 40981	BC337-25
7248	4822 130 40981	BC337-25
7249	4822 130 41246	BC327-25
7250	4822 209 33575	L7812CP
7320	4822 130 40981	BC337-25
7321	4822 130 40981	BC337-25
7322	4822 130 41246	BC327-25
7391	4822 209 12925	AN7124
7400	4822 130 41246	BC327-25
7401	4822 130 40981	BC337-25
7402	5322 209 10421	HEF4094BP
7501	4822 209 10263	HEF4052BP
7503	4822 130 41096	BC550C
7504	4822 130 41096	BC550C
7505	4822 130 44568	ON4986
7506	4822 130 44568	ON4986
7507	4822 130 44568	ON4986
7508	4822 130 44568	ON4986
7530	4822 209 10264	HEF4069UBD
7537	4822 130 40959	BC547B
7538	4822 130 40959	BC547B
7543	4822 130 40959	BC547B
7544	4822 130 40959	BC547B
7545	4822 130 40959	BC547B
7546	4822 130 40959	BC547B
7547	4822 130 40959	BC547B
7548	4822 130 40959	BC547B

Note: Only the parts mentioned in this list are normal service spare parts.

EXPLODED VIEW - MAIN UNIT


* 251
259
5001
1102D
283(2X)
299
282
280
(2X)
** 253
290
(2X)
286
(2X)
289
(6X)
288
# 298
# 151
# 1102 - 14
# 1102E
1101 - 14
* 1101 - 19
1101 - 12
1101 - 16
284
(2X)
1102-13
1102A
* 261
260
285 (2X)
1105
257
254
255
(2X)
162-167
277(5X)
132
112
145
1104
1102B
101
185 (2X)
278 (12X)
1103
133
* 1101 - 20
1101
135
131
1101 - 115
106
294 (2X)
105
107
108
124
* 153
# 152
199
200
* 158
* 160
205
204
198 (6X)
168-172
203 (2X)
297
1102 - 12
1102C
202
197
252
293 (2X)
144
* 146
201
200
* 159
* 161

NOTE :

----- FOR REMARK * - THIS PART IS DIFFERING BY VERSION.
----- FOR REMARK # - ONLY FOR KARAOKE VERSION ONLY.
----- FOR REMARK ** - NOT ON ALL VERSION.

MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT

101	3139 118 13520		Cabinet Front Assembly
105	3139 118 10440		Window CDC Control
106	3139 118 13230		Button Set CDC Select
107	3139 118 13210		Cover Tray CDC-LC
108	4822 454 13408		Badge Philips
124	3139 118 13290		Window Display
124	3139 118 13530		Window Display /37
131	3139 118 13540		Button Set Prog/Clock/DBB
132	3139 118 13550		Button Power On/Off
133	3139 118 13240		Button Set Source Select
135	3139 118 13560		Button Set Controls
144	3139 118 13570		Cover Ring Volume
145	3139 118 13580		Button DSC
146	3139 118 13590		Knob Volume Up/Down
153	3139 118 13250		Cover Controls
158	3139 118 13600		Cover Cassette Left
159	3139 118 13610		Cover Cassette Right
160	3139 114 71980		Lens Cassette Left
161	3139 114 71990		Lens Cassette Right
162-167	8240 009 27040		Rec/PB button set
168-172	8240 009 27050		Play button set
197	4822 529 10322		Damper Assembly
199	4822 492 70231		Spring Leaf
200	4822 443 10881		Door Cassette (Mech)
201	4822 492 42709		Spring Cassette Door
251	3139 114 69830		Cabinet Rear /21/22/30
251	3139 114 69840		Cabinet Rear /21M/34
251	3139 114 69850		Cabinet Rear /37
252	4822 462 40683		Foot Rubber SQ
255	4822 466 93148		Spacer 5mm
260	4822 492 11734		Spring IC
350	3139 118 78070		LS Box /37
350	3139 118 78080		LS Box /22/34
350	3139 118 78140		LS Box /21/21M/30
351	4822 303 50063		FM Aerial 75R
351	4822 320 11094		FM Antenna Wire /37
356	3139 228 86180		Rem Cont. RC282430/01
384	4822 303 50082		AM Frame Aerial
385	4822 321 10249	⚠	Mains Cord /21/21M/22/34
385	4822 321 10954	⚠	Mains Cord /30
385	4822 321 11466	⚠	Mains Cord /37
386	4822 263 21092	⚠	Adapter Plug /21
387	3139 115 20360		Instr. For Use /21/21M/30
387	3139 115 20280		Instruction For Use /22
387	3139 115 20330		Instruction For Use /34
387	3139 115 20160		Instruction For Use /37
1450	3139 110 34770		Flex Cable 15pin 22cm BD
1451	4822 320 12604		Flex Cable 9pin 22cm AD
1456	3139 110 34180		Flex Cable 16pin 22cm AD
1556	3139 110 34320		Flex Cable 6pin 40cm BD
5001	3139 118 32360	⚠	Mains Transfo. /21/21M
5001	3139 118 32370	⚠	Mains Transfo. /22/30/34
5001	3139 118 32350	⚠	Mains Transfo. /37

LOUDSPEAKER BOX BREAKDOWN

	9965 000 06350	Speaker 4" 3R 5W Black

Note: Only the parts mentioned in this list are normal service spare parts.

SPR 00 0049

SCREW LISTS - MAIN UNIT

185	D3 x 25
198	D3 x 12
202	D3 x 12
205	D3 x 12
277	D3 x 12
278	D3 x 12
280	D3 x 12
282	D3 x 12
283	D3 x 16
284	M3 x 15
285	D3 x 16
286	D3 x 12
288	D3 x 12
289	D3 x 12
290	D3 x 12
293	D3 x 12
294	D2 x 8
297	D3 x 12
299	D3 x 12

FW-C100

A01 - 150

Service
Service
Service

Product Service Group CE Audio

Service Information

Already published Service Informations:

CORRECTION TO SERVICE MANUAL
*

ADDITION TO SERVICE MANUAL

3CDC MODULE
*

CHANGES DURING PRODUCTION

ECO MTF Module

* From production wk116 onwards a new tape mechanism (recognized by CDS-83WPC-06) is introduced. Due to this change the undermentioned changes are made:

Mechanism parts.

Change	201 to	CDS-83WPC-06	3139 118 78570
	38-41 to	Flywheel assy Pb	9965 000 08765
	39-41 to	Flywheel assy Rec/Pb	9965 000 08766
	112 to	Erase Head	9965 000 02600
	114 to	Leaf Switch	4822 276 13712

PC Boards parts:

Change	2722 to	8,2nF 20% 16V	4822 126 13307
	3709 to	220R 5% 0,16W	4822 116 83872
	3785 to	220R 5% 0,16W	4822 116 83872
Add	9722	Bare Wire	

3CDC-LC MODULE

* From production wk123 onwards a new 3CDC-LC-MB-MCD1 Module is introduced (recognized by its metal chassis CD drive & new pc board with last digits ....3467**3** printed on the board). In order that this new module can function properly the software of the µProcessor on the Front Board is changed. It is available under:

7401	TMP87CP71F "C100S52791"	3139 110 52790

A new Chapter 10A is enclosed.

FRONT BOARD

* From production wk123 onwards a new µProcessor IC is introduced to cater for the implementation of new 3CDC-LC-MB-MCD1 Module. The new µProcessor is available under:

7401	TMP87CP71F "C100S52791"	3139 110 52790

COMBI BOARD

* From production wk111 onwards a new pt. 4 board (recognized by the last digits ....3410**4** printed on the board) is introduced.

a) To improve Elco 2225 voltage handling & resistors 3246 & 3248 heat handling (previous soldered on the copper pattern side)

(For /21/21M only)

Change	2225 to	4700µF 20% 25V	4822 124 12012
	3246 to	330R 5% 0,16W	4822 116 52175
	3248 to	330R 5% 0,16W	4822 116 52175
Add	3286	330R 5% 0,16W	4822 116 52175
	3287	330R 5% 0,16W	4822 116 52175
	3288	330R 5% 0,16W	4822 116 52175
	3289	330R 5% 0,16W	4822 116 52175

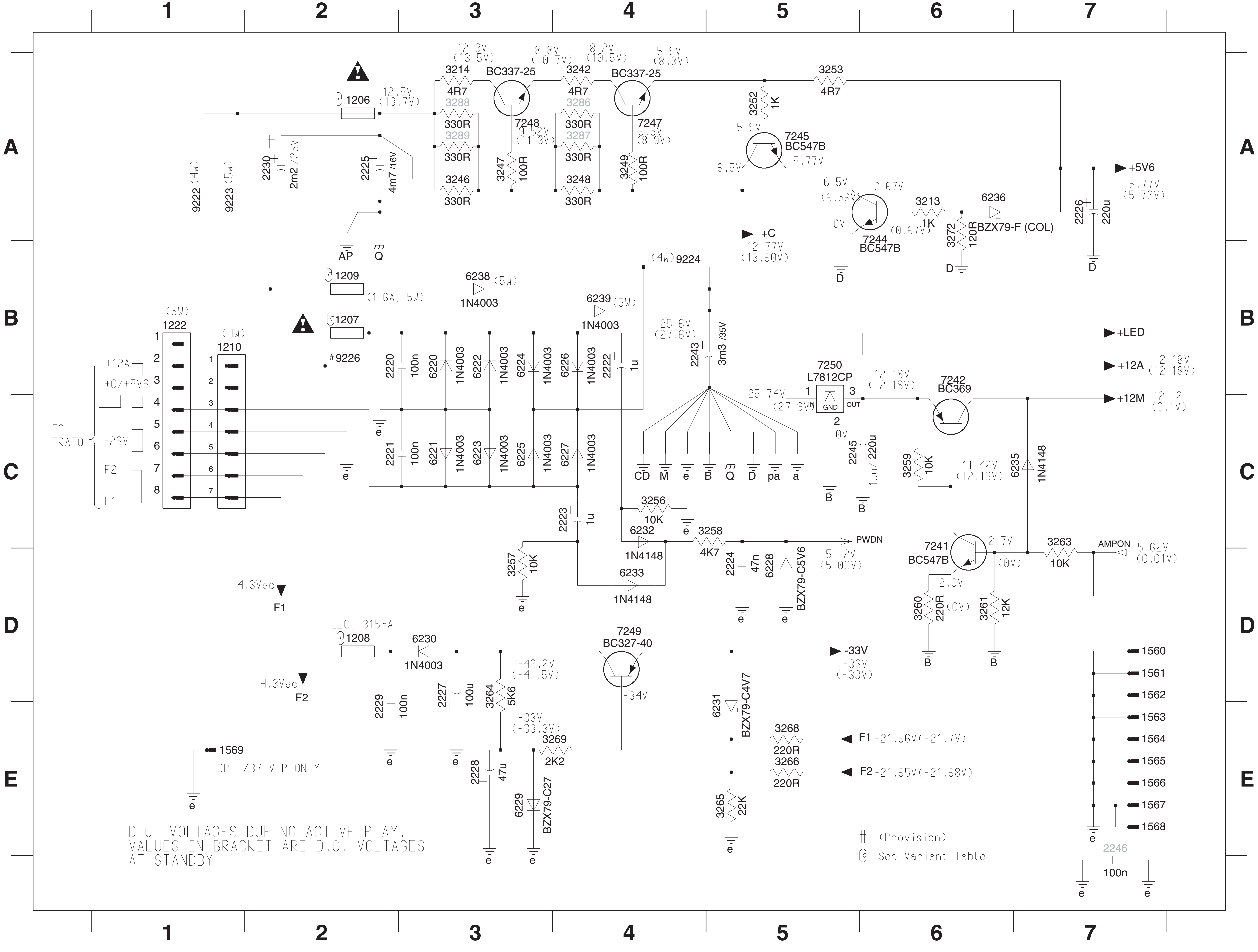
b) To improve conducted immunity at Tuner antenna

(Except /21/21M/37 versions)

Add	5503	Fe Bead 100MHz	4822 526 10704
	5504	Fe Bead 100MHz	4822 526 10704
Delete	9300	Bare Wire	
	9304	Bare Wire	

Updated circuit & layout drawings are enclosed

COMBI CIRCUIT DIAGRAM - POWER SUPPLY PART


1
2
3
4
5
6
7
A
B
C
D
E
1206
12.5V
(13.7V)
1207
1209
(1.6A, 5W)
1208
IEC, 315mA
1222
(5W)
1210
(4W)
9222 (4W)
9223 (5W)
(4W) 9224
#9226
2230
2m2 /25V
2225
4m7 /16V
AP
Q
3214
4R7
3288
330R
3289
330R
3246
330R
12.3V
(13.5V)
BC337-25
7248
9.52V
(11.3V)
3247
100R
8.8V
(10.7V)
3242
4R7
3286
330R
3287
330R
3248
330R
8.2V
(10.5V)
BC337-25
7247
6.5V
(8.9V)
3249
100R
5.9V
(8.3V)
3253
4R7
3252
1K
5.9V
7245
BC547B
5.77V
6.5V
6.5V
(6.56V)
0.67V
0V
7244
BC547B
(0.67V)
3213
1K
6236
BZX79-F (COL)
3272
120R
D
2226
220u
+5V6
5.77V
(5.73V)
+C
12.77V
(13.60V)
6238 (5W)
1N4003
6239 (5W)
1N4003
25.6V
(27.6V)
2243
3m3 /35V
2220
100n
6220
1N4003
6222
1N4003
6224
1N4003
6226
1N4003
2222
1u
2221
100n
6221
1N4003
6223
1N4003
6225
1N4003
6227
1N4003
CD
M
e
B
Q
D
pa
a
7250
L7812CP
1
2
3
IN
GND
OUT
25.74V
(27.9V)
0V
2245
220u
10u/
+LED
+12A
12.18V
(12.18V)
12.18V
(12.18V)
7242
BC369
+12M
12.12
(0.1V)
3259
10K
11.42V
(12.16V)
6235
1N4148
+12A
+C/+5V6
-26V
F2
F1
TO
TRAFO
2223
1u
3256
10K
6232
1N4148
3258
4K7
2224
47n
6228
BZX79-C5V6
PWDN
5.12V
(5.00V)
3257
10K
6233
1N4148
7241
BC547B
2.7V
(0V)
2.0V
3260
220R
(0V)
3261
12K
3263
10K
AMPON
5.62V
(0.01V)
4.3Vac
F1
4.3Vac
F2
6230
1N4003
2229
100n
2227
100u
3264
5K6
-40.2V
(-41.5V)
7249
BC327-40
-34V
-33V
(-33.3V)
3269
2K2
2228
47u
6229
BZX79-C27
-33V
-33V
(-33V)
6231
BZX79-C4V7
3268
220R
F1 -21.66V(-21.7V)
3266
220R
F2 -21.65V(-21.68V)
3265
22K
1569
FOR -/37 VER ONLY
1560
1561
1562
1563
1564
1565
1566
1567
1568
2246
100n
e

D.C. VOLTAGES DURING ACTIVE PLAY.
VALUES IN BRACKET ARE D.C. VOLTAGES
AT STANDBY.

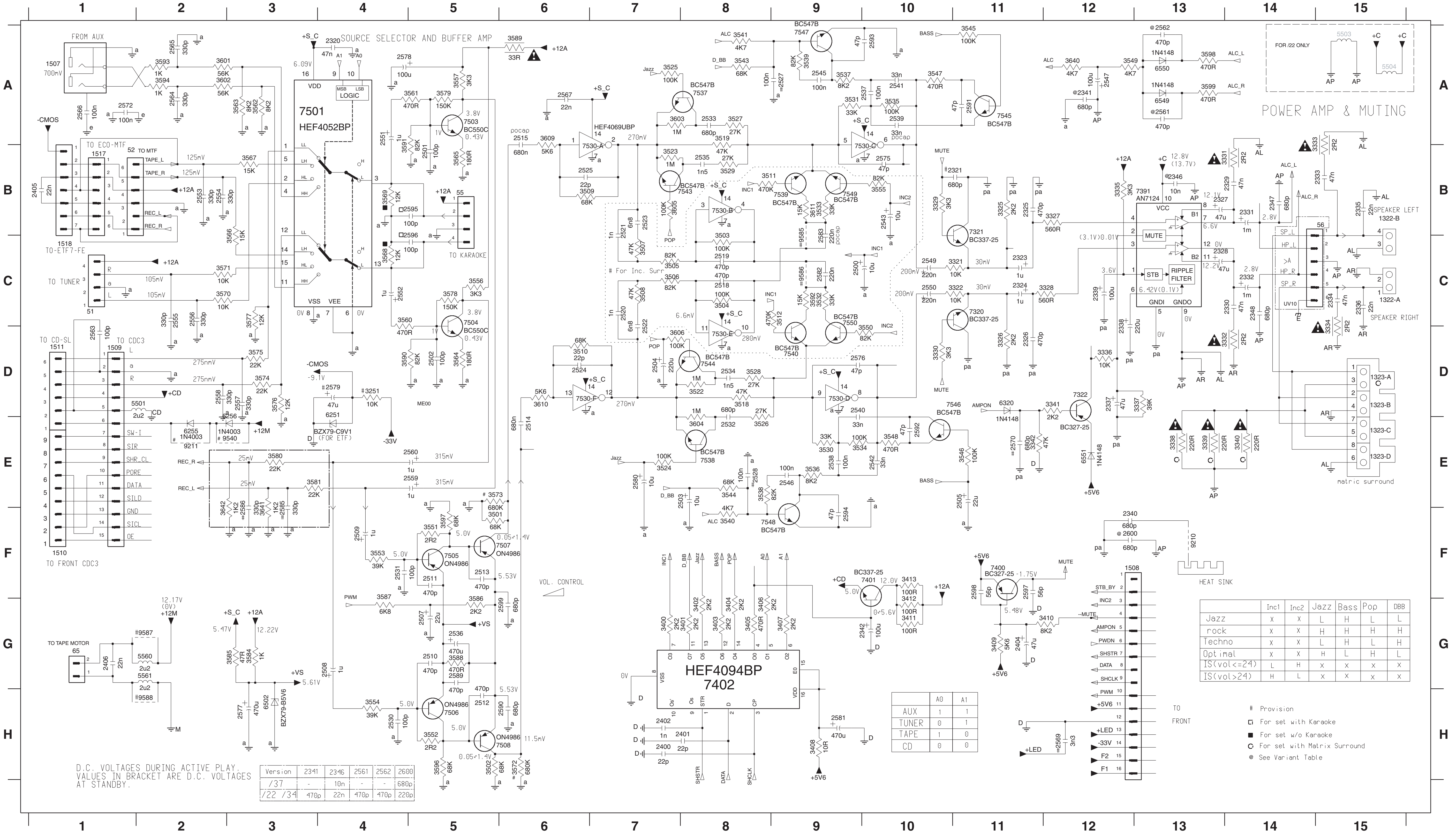
(Provision)
@ See Variant Table

1206	A2
1207	B2
1208	D2
1209	B2
1210	B1
1222	B1
1560	D7
1561	D7
1562	D7
1563	E7
1564	E7
1565	E7
1566	E7
1567	E7
1568	E7
1569	E1
2220	B2
2221	C2
2222	B4
2223	C4
2224	D5
2225	A2
2226	A7
2227	D3
2228	E3
2229	E2
2230	A2
2243	B4
2245	C5
2246	E7
3213	A6
3214	A3
3242	A4
3246	A3
3247	A3
3248	A4
3249	A4
3252	A5
3253	A5
3256	C4
3257	D3
3258	C5
3259	C6
3260	D6
3261	D6
3263	C7
3264	D3
3265	E5
3266	E5
3268	E5
3269	E4
3272	A6
3286	A4
3287	A4
3288	A3
3289	A3
6220	B3
6221	C3
6222	B3
6223	C3
6224	B3
6225	C3
6226	B4
6227	C4
6228	D5
6229	E3
6230	D3
6231	E5
6232	C4
6233	D4
6235	C7
6236	A6
6238	B3
6239	B4
7241	D6
7242	B6
7244	A6
7245	A5
7247	A4
7248	A3
7249	D4
7250	B5
9222	A1
9223	A1
9224	B4
9226	B2

COMBI CIRCUIT DIAGRAM - SOURCE SELECT & AMPLIFIER PART

51 C1	1508 F12	2327 B13	2339 C12	2406 G1	2512 H5	2527 A9	2540 D9	2554 B2	2566 A1	2582 C9	2597 F11	3330 D10	3342 E11	3411 G10	3510 D6	3529 B8	3541 A8	3554 H4	3568 C4	3580 E3	3594 A2
52 B1	1509 D1	2328 C13	2340 F12	2500 C9	2513 F5	2528 E8	2541 A10	2555 C2	2567 A6	2583 C9	2598 F11	3331 B14	3400 G7	3412 G10	3511 B8	3530 E9	3543 A8	3555 B10	3569 B4	3581 E3	3596 H5
55 B5	1510 F1	2329 B14	2341 A12	2501 B5	2514 E6	2530 H4	2542 E10	2556 C2	2569 H12	2585 F3	2599 G6	3332 D14	3401 G8	3413 F10	3512 C9	3531 A9	3544 E8	3556 C5	3570 C2	3584 G3	3597 F5
56 B15	1511 D1	2330 C14	2342 G10	2502 D5	2515 A6	2531 F4	2543 B10	2557 D3	2570 E11	2586 F3	2600 F12	3333 A15	3402 G8	3501 F5	3518 D8	3532 C9	3545 A11	3557 A5	3571 C2	3585 G3	3598 A13
65 G1	1517 B1	2331 B14	2346 B13	2503 E8	2518 C8	2532 E8	2545 A9	2558 D2	2572 A1	2589 G5	3251 D4	3334 D15	3403 G8	3502 H5	3519 A8	3533 B9	3546 E11	3560 C4	3572 H6	3586 G5	3599 A13
1322-A C15	1518 C1	2332 C14	2347 B14	2504 D7	2519 C8	2533 A8	2546 E9	2559 E5	2575 B10	2590 H6	3321 C11	3335 B12	3404 G8	3503 C8	3522 D8	3534 E9	3547 A10	3561 A5	3573 E5	3587 G4	3601 A2
1322-B B15	2320 A4	2333 B15	2348 C14	2505 E11	2520 C7	2534 D8	2547 A12	2560 E5	2576 D9	2591 A11	3322 C11	3336 D12	3405 G8	3504 C8	3523 B7	3535 A10	3548 E10	3562 A3	3574 D3	3588 G5	3602 A2
1323-A D15	2321 B11	2334 C15	2400 H7	2507 G5	2521 B7	2535 B8	2549 C10	2561 A13	2577 H3	2592 E10	3325 B11	3337 D13	3406 G8	3505 C7	3524 E7	3536 E9	3549 A12	3563 A3	3575 D3	3589 A6	3603 A7
1323-B D15	2323 C11	2335 B15	2401 H8	2508 G4	2522 D7	2536 G5	2550 C10	2562 A13	2578 A4	2593 A10	3326 D11	3338 E13	3407 G9	3506 C7	3525 A7	3537 A9	3550 D10	3564 D5	3576 D3	3590 D4	3604 E8
1323-C E15	2324 C11	2336 C15	2402 H7	2509 F4	2523 B7	2537 A10	2551 A4	2563 D1	2579 D4	2594 F9	3327 B12	3339 E13	3408 H9	3507 C7	3526 E8	3538 E8	3551 F5	3565 B5	3577 C3	3591 B4	3605 B7
1323-D E15	2325 B11	2337 D12	2404 G11	2510 G5	2524 D6	2538 E9	2552 C4	2564 A2	2580 E7	2595 B5	3328 C12	3340 E14	3409 G11	3508 C7	3527 A8	3539 A9	3552 H5	3566 C3	3578 C5	3592 C9	3606 D7
1507 A1	2326 D11	2338 D12	2405 B1	2511 F5	2525 B6	2539 A10	2553 B2	2565 A2	2581 H9	2596 C5	3329 B10	3341 D12	3410 G12	3509 B6	3528 D8	3540 F8	3553 F4	3567 B3	3579 A5	3593 A2	3609 A6

3610 D6	6256 E3	7402 G8	7530-E D8	7549 B9	
3611 B9	6320 D11	7501 A3	7530-F D6	7550 C9	
3640 A12	6502 H3	7503 A5	7537 A8	9210 F13	
3641 F3	6549 A13	7504 C5	7538 E8	9211 E2	
3642 F2	6550 A13	7505 F5	7539 B9	9540 E3	
5501 D2	6551 E12	7506 H5	7540 D9	9585 B9	
5503 A15	7320 C11	7507 F5	7543 B7	9586 C9	
5504 A15	7321 B11	7508 H5	7544 D8	9587 G2	
5560 G2	7322 D12	7530-A B6	7545 A11	9588 H2	
5561 G2	7391 B13	7530-B B8	7546 D11		
6251 E4	7400 F11	7530-C B9	7547 A9		
6255 E2	7401 F10	7530-D D9	7548 F8		



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H
FROM AUX
1507
700mV
TO ECO-MTF
TO MTF
TAPE_L
TAPE_R
REC_L
REC_R
1517
52
1518
TO-ETF7-FE
-CMOS
TO TUNER
51
TO CD-SL
TO CDC3
1511
1509
SW-I
SIR
SHR_CL
PORE
DATA
SILD
GND
SICL
OE
1510
TO FRONT CDC3
TO TAPE MOTOR
65
SOURCE SELECTOR AND BUFFER AMP
7501
HEF4052BP
LOGIC
MSB
LSB
VDD
VSS
VEE
TO KARAOKE
55
+S_C
+12A
+12M
+CD
+VS
-33V
REC_R
REC_L
BZX79-C9V1
(FOR ETF)
1N4003
7503 BC550C
7504 BC550C
7505 ON4986
7506 ON4986
7507 ON4986
7508 ON4986
VOL. CONTROL
PWM
HEF4094BP
7402
STR
DATA
SHCLK
INC1
D_BB
Jazz
BASS
POP
A0
A1
7401 BC337-25
7400 BC327-25
1508
STB_BY
INC2
MUTE
AMPON
PWDN
SHSTR
DATA
SHCLK
PWM
+5V6
+LED
-33V
F2
F1
TO
FRONT
HEAT SINK
9210
7530-A
7530-B
7530-C
7530-D
7530-E
7530-F
HEF4069UBP
7537 BC547B
7538 BC547B
7539 BC547B
7540 BC547B
7543 BC547B
7544 BC547B
7545 BC547B
7546 BC547B
7547 BC547B
7548 BC547B
7549 BC547B
7550 BC547B
# For Inc. Surr
ALC
7320 BC337-25
7321 BC337-25
7322 BC327-25
7391 AN7124
VCC
MUTE
STB
RIPPLE FILTER
GNDI
GNDO
POWER AMP & MUTING
FOR /22 ONLY
5503
5504
56
SP_L
HP_L
HP_R
SP_R
1322-B
SPEAKER LEFT
1322-A
SPEAKER RIGHT
1323-A
1323-B
1323-C
1323-D
matric surround
ALC_L
ALC_R
AMPON

D.C. VOLTAGES DURING ACTIVE PLAY.
VALUES IN BRACKET ARE D.C. VOLTAGES
AT STANDBY.

Version	2341	2346	2561	2562	2600
/37	-	10n	-	-	680p
/22 /34	470p	22n	470p	470p	220p

	A0	A1
AUX	1	1
TUNER	0	1
TAPE	1	0
CD	0	0

	Inc1	Inc2	Jazz	Bass	Pop	DBB
Jazz	X	X	L	H	L	L
rock	X	X	H	H	H	H
Techno	X	X	L	H	L	H
Optimal	X	X	H	L	H	L
IS(vol<=24)	L	H	X	X	X	X
IS(vol>24)	H	L	X	X	X	X

# Provision

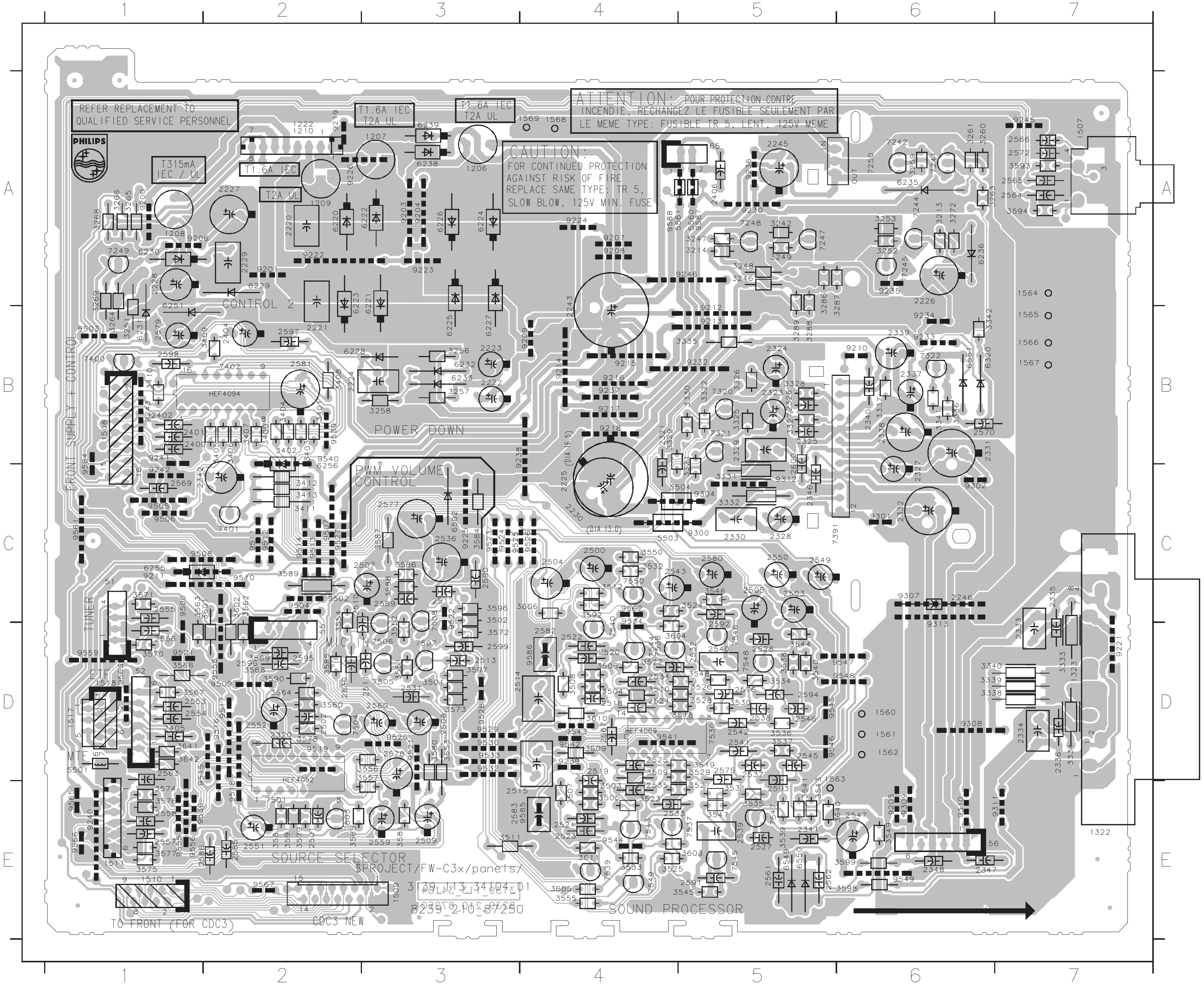
◲ For set with Karaoke

■ For set w/o Karaoke

○ For set with Matrix Surround

@ See Variant Table

COMBI COMPONENT LAYOUT - MAIN PART


1
2
3
4
5
6
7
A
B
C
D
E
REFER REPLACEMENT TO
QUALIFIED SERVICE PERSONNEL
PHILIPS
T315mA
IEC / UL
T1.6A IEC
T2A UL
T1.6A IEC
T2A UL
T1.6A IEC
T2A UL
ATTENTION: POUR PROTECTION CONTRE
INCENDIE, RECHANGEZ LE FUSIBLE SEULEMENT PAR
LE MEME TYPE: FUSIBLE TR 5, LENT, 125V MEME
CAUTION:
FOR CONTINUED PROTECTION
AGAINST RISK OF FIRE
REPLACE SAME TYPE: TR 5,
SLOW BLOW, 125V MIN. FUSE
CONTROL 2
FRONT SUPPLY + CONTROL
HEF4094
POWER DOWN
PWM VOLUME
CONTROL
(DIA 16.0)
(DIA 13.0)
TUNER
ETF
MTF
HEF4052
HEF4066
SOURCE SELECTOR
$PROJECT/FW-C3x/panels/
3139 113 34104 01
8239 210 87250
SOUND PROCESSOR
TO FRONT (FOR CDC3)
CDC3 NEW
IN
OUT
1322
1507

51	C1	2531	D3	3336	B6	3593	A7	9218	B4
52	D1	2532	D5	3337	B6	3594	A7	9219	A2
55	D2	2533	E4	3338	D6	3596	C3	9221	D7
56	E6	2534	D4	3339	D6	3597	D3	9222	A2
65	A5	2535	E4	3340	D6	3598	E6	9223	A3
1206	A3	2536	C3	3341	B6	3599	E6	9224	A4
1207	A3	2537	D5	3342	B6	3601	C2	9225	C3
1208	A1	2538	D5	3400	B2	3602	C2	9226	A2
1209	A2	2539	E5	3401	B2	3603	E5	9230	A5
1210	A2	2540	D5	3402	B2	3604	D4	9232	B5
1222	A2	2541	D5	3403	B2	3605	E4	9233	B6
1322	E7	2542	D5	3404	B2	3606	C4	9234	B6
1323	D7	2543	C4	3405	B2	3609	D4	9235	A6
1507	A7	2545	D5	3406	B2	3610	D4	9236	A5
1508	B1	2546	D5	3407	B2	3611	E4	9237	B4
1509	E3	2547	E6	3408	B2	3640	E6	9238	B3
1510	E1	2549	C5	3409	B2	3641	D1	9239	D4
1511	E1	2550	C5	3410	B1	3642	D1	9240	E1
1517	D1	2551	E2	3411	C2	5501	D1	9241	B1
1518	D1	2552	D2	3412	C2	5503	C4	9242	C1
1560	D6	2553	D1	3413	C2	5504	C5	9243	B1
1561	D6	2554	D1	3501	D3	5560	A5	9245	A7
1562	D6	2555	C1	3502	C3	5561	A4	9246	A5
1563	D5	2556	D1	3503	E4	6220	A2	9300	C5
1564	A7	2557	E1	3504	D4	6221	A3	9301	C6
1565	B7	2558	E1	3505	E4	6222	A3	9302	C6
1566	B7	2559	E3	3506	D4	6223	A2	9304	C5
1567	B7	2560	D3	3507	E4	6224	A3	9307	C6
1568	A4	2561	E5	3508	D4	6225	B3	9308	D6
1569	A4	2562	E5	3509	D4	6226	A3	9309	E6
2220	A2	2563	D1	3510	D4	6227	B3	9310	E6
2221	B2	2564	A7	3511	E3	6228	B2	9311	E7
2222	B3	2565	A7	3512	C4	6229	A2	9312	C5
2223	B3	2566	A7	3518	D5	6230	A1	9313	D6
2224	B2	2567	D4	3519	D5	6231	B1	9500	C1
2225	C4	2569	C1	3522	D4	6232	B3	9501	D1
2226	A6	2570	B6	3523	E4	6233	B3	9502	C2
2227	A2	2572	A7	3524	C5	6235	A6	9503	B1
2228	A1	2575	D5	3525	E4	6236	A6	9504	C2
2229	A2	2576	D5	3526	D5	6238	A3	9505	C1
2230	C4	2577	C3	3527	E5	6239	A3	9506	C1
2243	B4	2578	D3	3528	D5	6251	A1	9507	C2
2245	A5	2579	B1	3529	D5	6255	C1	9508	C1
2246	C6	2580	C5	3530	D5	6256	C2	9509	D2
2320	D2	2581	B2	3531	E5	6320	B6	9510	C2
2321	B4	2582	D4	3532	C4	6502	C3	9511	C2
2323	B5	2583	E3	3533	E4	6549	E5	9512	C2
2324	B5	2585	E2	3534	D5	6550	E5	9513	C2
2325	B5	2586	E1	3535	E5	6551	B6	9514	C2
2326	B5	2589	C3	3536	D5	7241	A6	9515	D1
2327	C6	2590	C3	3537	D5	7242	A6	9516	D2
2328	C5	2591	E5	3538	D5	7244	A6	9517	D2
2329	B5	2592	D5	3539	E5	7245	A6	9518	E2
2330	C5	2593	E5	3540	D5	7247	A5	9519	D2
2331	B6	2594	D5	3541	E5	7248	A5	9520	D3
2332	C6	2595	D2	3543	E5	7249	A1	9521	D3
2333	D7	2596	D2	3544	D5	7250	A6	9522	C3
2334	D7	2597	B2	3545	E5	7320	B5	9523	C3
2335	C7	2598	B1	3546	C5	7321	B5	9524	C3
2336	D7	2599	D3	3547	E5	7322	B6	9525	C3
2337	B6	2600	B5	3548	D5	7391	C5	9526	C4
2338	B6	3213	A6	3549	E6	7400	B1	9527	C2
2339	B6	3214	A5	3550	C4	7401	C2	9528	D3
2340	B6	3242	A5	3551	D3	7402	B2	9529	D3
2341	E5	3246	A5	3552	D3	7501	E2	9530	D3
2342	C1	3247	A5	3553	D3	7503	E2	9532	D3
2346	C5	3248	A5	3554	C2	7504	D2	9533	D3
2347	E6	3249	A5	3555	E4	7505	D3	9534	C4
2348	E6	3251	B1	3556	D3	7506	D3	9536	E1
2400	B1	3252	A6	3557	D3	7507	D3	9539	B2
2401	B1	3253	A6	3560	D2	7508	C3	9540	B2
2402	B1	3256	B3	3561	E2	7530	D5	9541	D4
2404	B2	3257	B3	3562	C2	7537	E5	9542	D4
2405	D1	3258	B3	3563	C1	7538	D4	9543	D4
2406	A5	3259	A6	3564	D2	7539	E4	9544	E4
2500	C4	3260	A6	3565	E2	7540	D4	9545	D5
2501	E2	3261	A6	3566	D1	7543	E4	9546	D5
2502	D2	3263	A6	3567	D1	7544	D4	9547	D6
2503	C5	3264	B1	3568	D2	7545	E5	9548	D6
2504	C4	3265	A1	3569	D2	7546	D5	9549	E6
2505	C5	3266	A1	3570	D1	7547	E5	9555	E1
2507	C3	3268	A1	3571	C1	7548	D5	9556	E1
2508	D3	3269	A1	3572	D3	7549	E4	9558	D2
2509	E3	3272	A6	3573	D3	7550	C4	9559	D1
2510	C2	3286	A5	3574	E1	9200	A1	9561	C1
2511	D3	3287	A6	3575	E1	9201	A2	9562	C4
2512	C3	3288	B5	3576	E1	9203	A3	9563	D1
2513	D3	3289	B5	3577	E1	9204	A3	9564	B1
2514	D3	3321	C5	3578	D2	9205	E6	9565	E1
2515	E3	3322	B5	3579	E2	9206	A1	9566	E1
2518	D4	3325	B5	3580	D3	9207	A4	9567	E2
2519	D4	3326	B5	3581	E3	9208	A4	9585	E4
2520	D4	3327	B5	3584	C3	9209	B4	9586	D4
2521	E4	3328	B5	3585	D2	9210	B6	9587	A5
2522	D4	3329	B4	3586	C3	9211	C1	9588	A4
2523	E4	3330	B5	3587	C3	9212	B5		
2524	D4	3331	C5	3588	C3	9213	B5		
2525	D4	3332	C5	3589	C2	9214	B4		
2527	E5	3333	D7	3590	D2	9215	B4		
2528	D5	3334	D7	3591	E2	9216	B4		
2530	D2	3335	B5	3592	C4	9217	B4		

3CDC-LC-MB-MCD-1 Module

(3 Disc Carousel Changer)

Layout stage .3

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WARNING

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE

- ***SWITCH OFF POWER SUPPLY***
- ***ESD PROTECTION***

ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CD mechanism:

1. Disconnect CD drive flexfoil from old CD drive
2. Connect paperclip to CD drive flexfoil to short-circuit flexfoil (fig.1)
3. Remove old CD drive
4. Remove short-circuit from flexfoil of CD drive
5. Connect flexfoil to new CD drive
6. Position new CD drive in its studs
7. Remove short-circuit from Laserunit

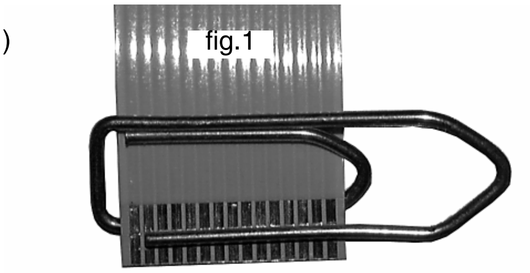
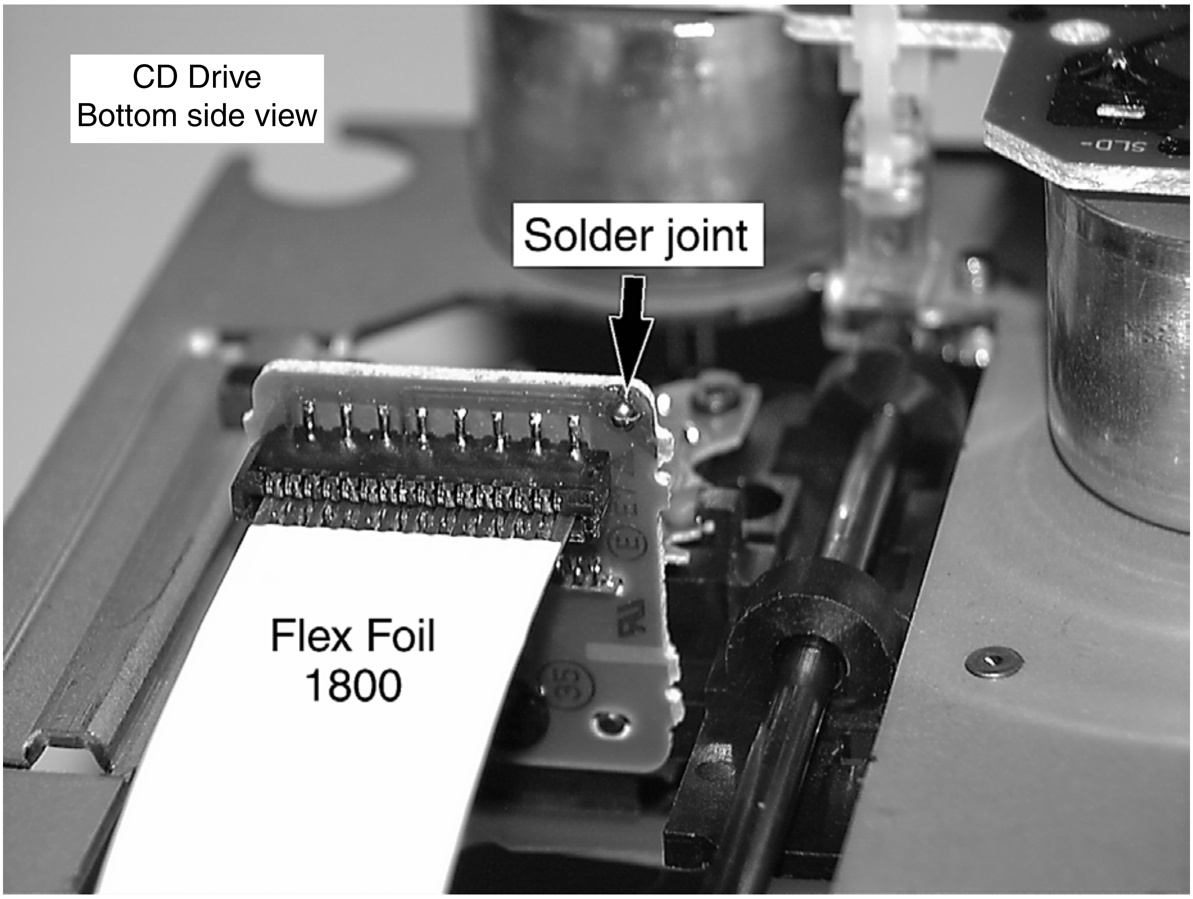
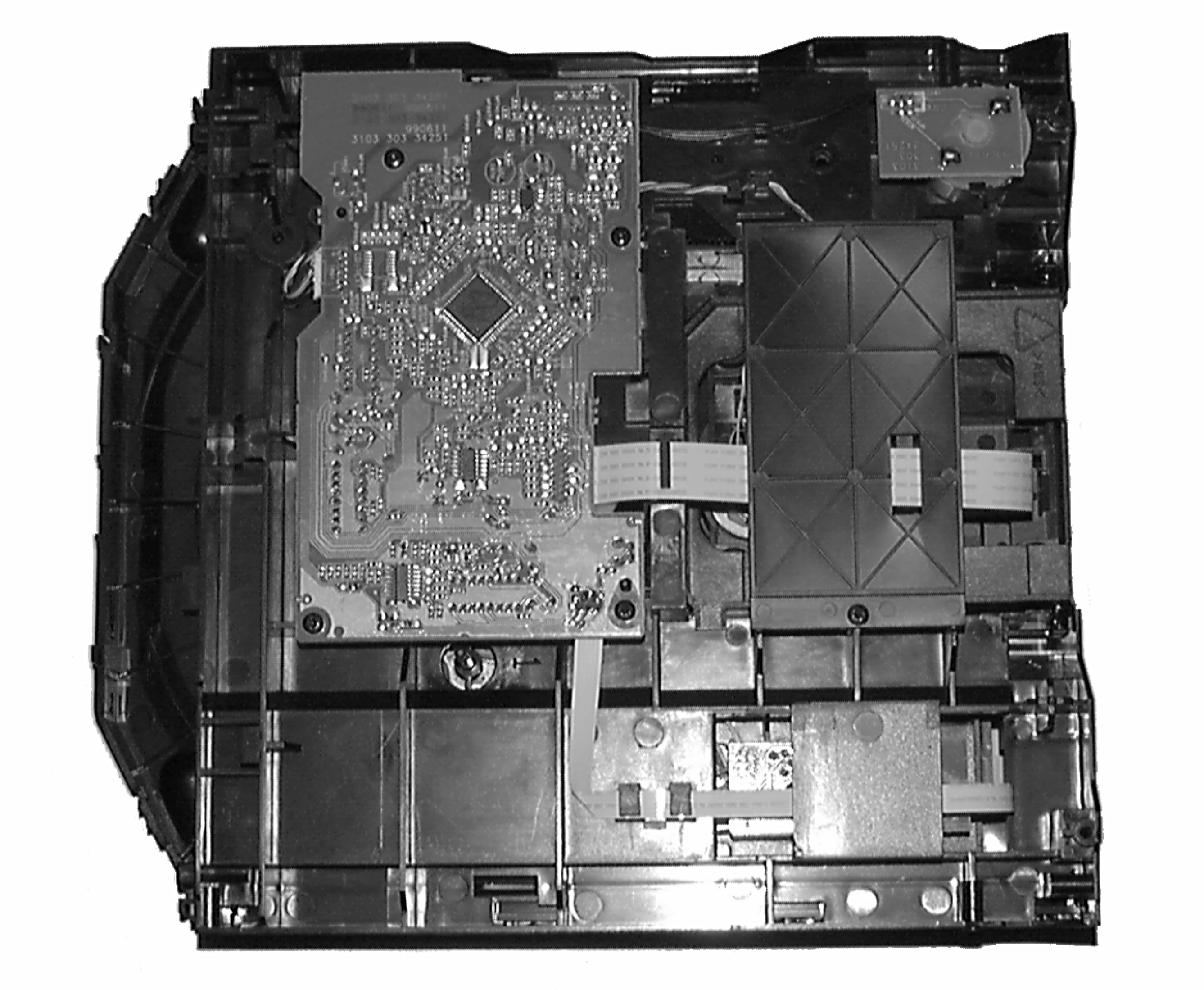


fig.1

Attention: The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laserdiode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connection the drive to the set.

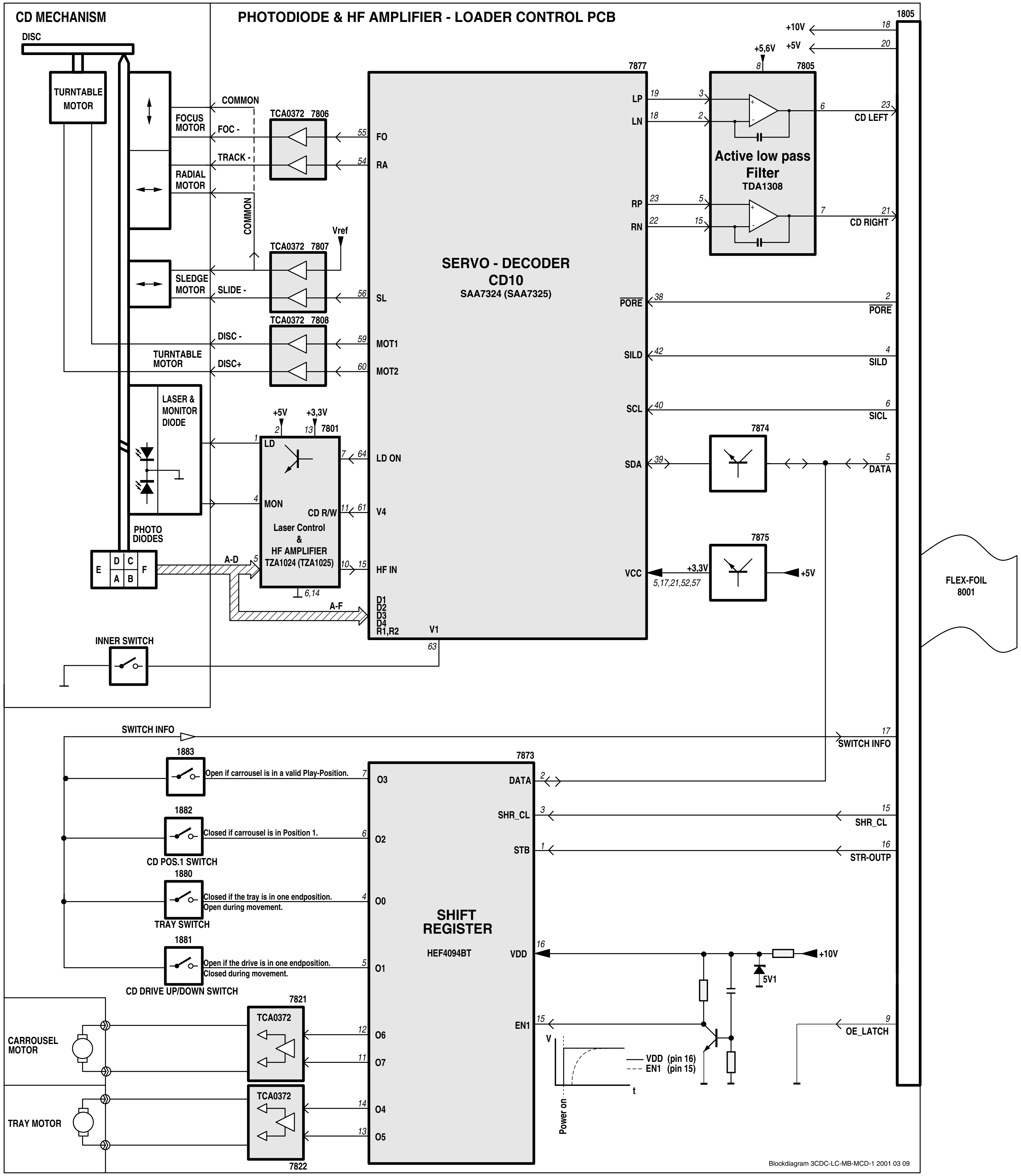


Service Position

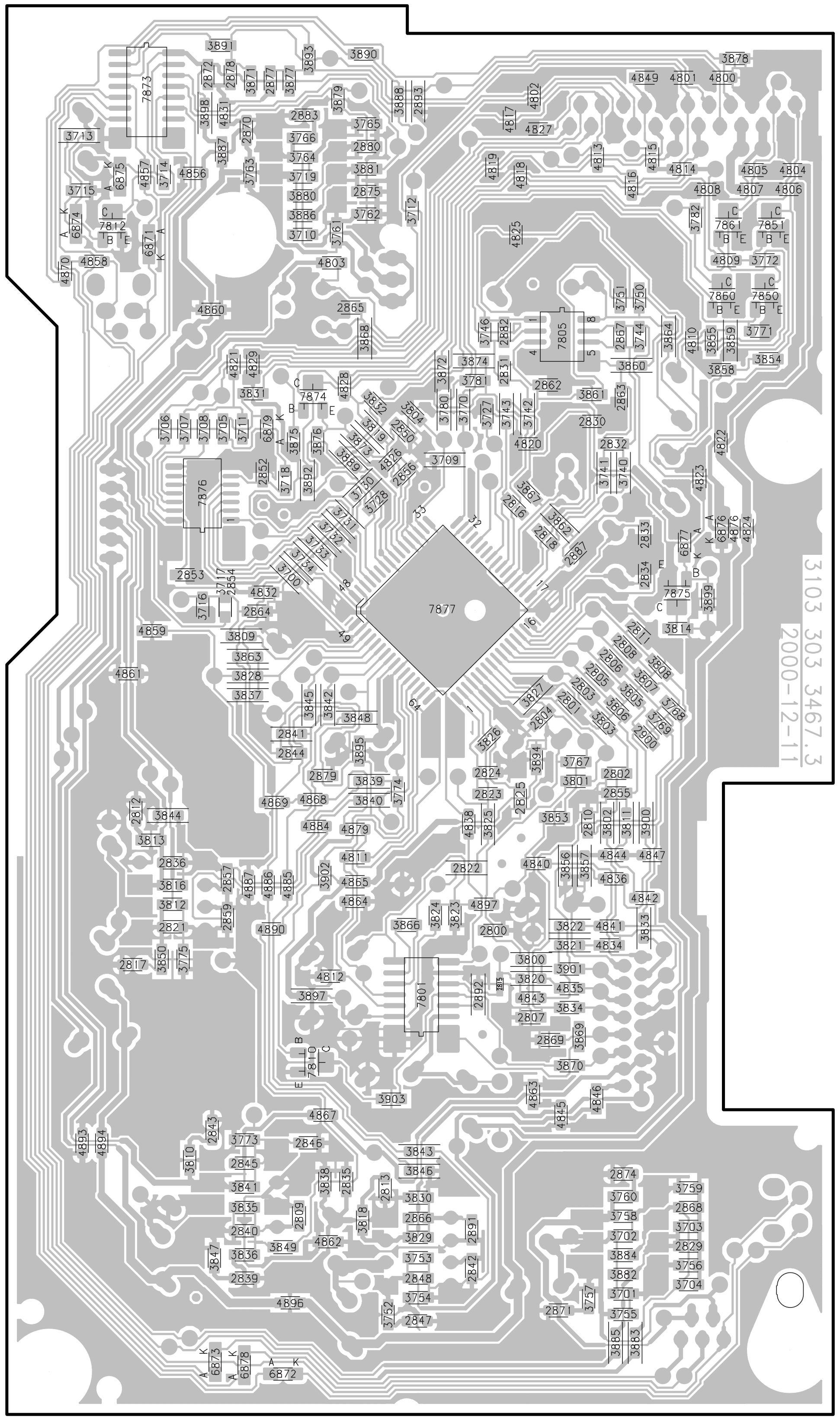


Technical Remarks

Blockdiagram


CD MECHANISM
PHOTODIODE & HF AMPLIFIER - LOADER CONTROL PCB
DISC
TURNTABLE MOTOR
FOCUS MOTOR
RADIAL MOTOR
SLEDGE MOTOR
TURNTABLE MOTOR
COMMON
FOC -
TRACK -
COMMON
SLIDE -
DISC -
DISC+
TCA0372 7806
TCA0372 7807
TCA0372 7808
Vref
55 FO
54 RA
56 SL
59 MOT1
60 MOT2
LASER & MONITOR DIODE
+5V
+3,3V
2
13
7801
1 LD
4 MON
7 64 LD ON
CD R/W 11 61 V4
Laser Control & HF AMPLIFIER TZA1024 (TZA1025)
10 15 HF IN
6,14
PHOTO DIODES
E D C A B F
A-D 5
A-F
D1 D2 D3 D4 R1,R2
V1 63
INNER SWITCH
7877
SERVO - DECODER CD10
SAA7324 (SAA7325)
LP 19 3
LN 18 2
RP 23 5
RN 22 15
PORE 38
SILD 42
SCL 40
SDA 39
VCC
5,17,21,52,57
+3,3V
+5V
7874
7875
+5,6V 8
7805
Active low pass Filter
TDA1308
6
7
1805
+10V 18
+5V 20
23 CD LEFT
21 CD RIGHT
2 PORE
4 SILD
6 SICL
5 DATA
FLEX-FOIL 8001
SWITCH INFO
17 SWITCH INFO
1883
Open if carrousel is in a valid Play-Position.
7 O3
1882
Closed if carrousel is in Position 1.
6 O2
CD POS.1 SWITCH
1880
Closed if the tray is in one endposition.
Open during movement.
4 O0
TRAY SWITCH
1881
Open if the drive is in one endposition.
Closed during movement.
5 O1
CD DRIVE UP/DOWN SWITCH
7873
DATA 2
SHR_CL 3
STB 1
15 SHR_CL
16 STR-OUTP
SHIFT REGISTER
HEF4094BT
VDD 16
EN1 15
+10V
5V1
9 OE_LATCH
V
t
Power on
VDD (pin 16)
EN1 (pin 15)
7821
TCA0372
12 O6
11 O7
CARROUSEL MOTOR
TCA0372
14 O4
13 O5
TRAY MOTOR
7822
Blockdiagram 3CDC-LC-MB-MCD-1 2001 03 09

3CDC-LC-MB Copperside view



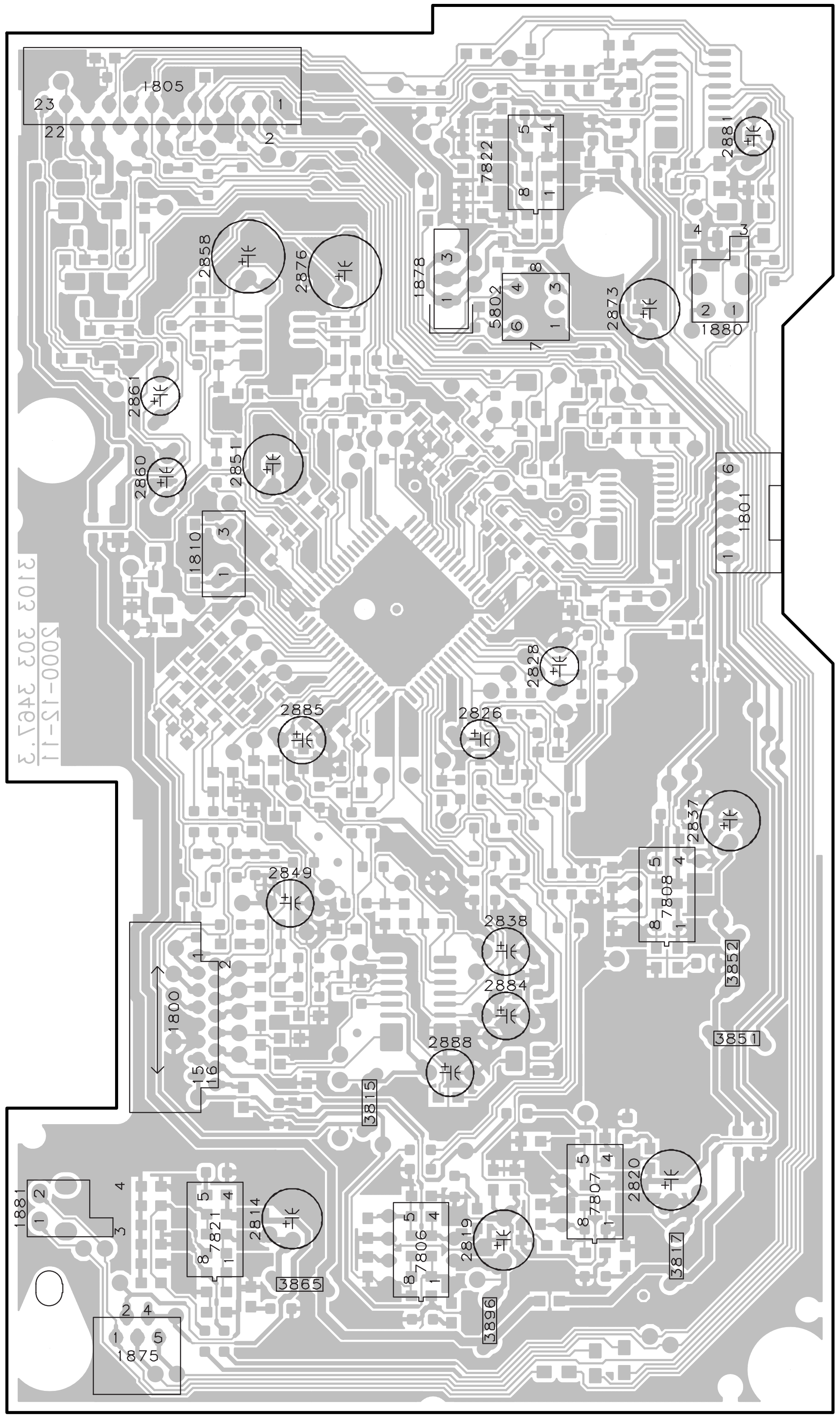
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LC-MB-DA11 Layout stage .3 2001-01-11

Mapping

Copperside								Componentside	
2800	F3	3746	B3	3880	A2	7812	B1	1800	F2
2801	D4	3750	B4	3881	A3	7850	B5	1801	C5
2802	E4	3751	B4	3882	H4	7851	B5	1805	A2
2803	D4	3752	H3	3883	H4	7860	B5	1810	C2
2804	D4	3753	H3	3884	H4	7861	B5	1875	H1
2805	D4	3754	H3	3885	H4	7873	A1	1878	B3
2806	D4	3755	H4	3886	B2	7874	C2	1880	B5
2807	F4	3756	H4	3887	A2	7875	D4	1881	G1
2808	D4	3757	H4	3888	A3	7876	C2	2814	G2
2809	G2	3758	G4	3889	C2	7877	D3	2819	G3
2810	E4	3759	G4	3890	A3			2820	G4
2811	D4	3760	G4	3891	A2			2826	D3
2812	E1	3761	B2	3892	C2			2828	D4
2813	G3	3762	B3	3893	A2			2837	E5
2815	F3	3763	A2	3894	E4			2838	F4
2816	C3	3764	A2	3895	E3			2849	E2
2817	F1	3765	A3	3897	F2			2851	C2
2818	C4	3766	A2	3898	A2			2858	B2
2821	F1	3767	E4	3899	D5			2860	C1
2822	E3	3768	D4	3900	E4			2861	C1
2823	E3	3769	D4	3901	F4			2873	B4
2824	E3	3770	C3	3902	E2			2876	B2
2825	E3	3771	B5	3903	G3			2881	A5
2829	H4	3772	B5	4800	A5			2884	F4
2830	C4	3773	G2	4801	A4			2885	D2
2831	B3	3774	E3	4802	A4			2888	F3
2832	C4	3775	F2	4803	B2			3815	G3
2833	C4	3780	C3	4804	A5			3817	H5
2834	D4	3781	B3	4805	A5			3851	F5
2835	G2	3782	B5	4806	A5			3852	F5
2836	E1	3800	F4	4807	A5			3865	H2
2839	H2	3801	E4	4808	A5			3896	H3
2840	G2	3802	E4	4809	B5			5802	B4
2841	E2	3803	D4	4810	B4			7806	H3
2842	H3	3804	C3	4811	E3			7807	G4
2843	G2	3805	D4	4812	F2			7808	E5
2844	E2	3806	D4	4813	A4			7821	G2
2845	G2	3807	D4	4814	A4			7822	A3
2846	G2	3808	D4	4815	A4				
2847	H3	3809	D2	4816	A4				
2848	H3	3810	G2	4817	A3				
2850	C3	3811	E4	4818	A3				
2852	C2	3812	F1	4819	A3				
2853	D2	3813	E1	4820	C4				
2854	D2	3814	D4	4821	B2				
2855	E4	3816	E1	4822	C5				
2856	C3	3818	G3	4823	C5				
2857	E2	3819	C3	4824	C5				
2859	F2	3820	F4	4825	B3				
2862	C4	3821	F4	4826	C3				
2863	C4	3822	F4	4827	A4				
2864	D2	3823	F3	4828	C2				
2865	B3	3824	F3	4829	B2				
2866	G3	3825	E3	4831	A2				
2867	B4	3826	E3	4832	D2				
2868	G4	3827	D4	4834	F4				
2869	F4	3828	D2	4835	F4				
2870	A2	3829	G3	4836	E4				
2871	H4	3830	G3	4838	E3				
2872	A2	3831	C2	4840	E4				
2874	G4	3832	C3	4841	F4				
2875	A3	3833	F4	4842	E4				
2877	A2	3834	F4	4843	F4				
2878	A2	3835	G2	4844	E4				
2879	E2	3836	H2	4845	G4				
2880	A3	3837	D2	4846	G4				
2882	B3	3838	G2	4847	E4				
2883	A2	3839	E3	4849	A4				
2887	C4	3840	E3	4856	A2				
2891	G3	3841	G2	4857	A1				
2892	F3	3842	D2	4858	B1				
2893	A3	3843	G3	4859	D1				
2900	E4	3844	E1	4860	B2				
3700	D2	3845	D2	4861	D1				
3701	H4	3846	G3	4862	G2				
3702	G4	3847	H2	4863	G4				
3703	G4	3848	D3	4864	F3				
3704	H4	3849	H2	4865	E3				
3705	C2	3850	F1	4867	G2				
3706	C1	3853	E4	4868	E2				
3707	C2	3854	B5	4869	E2				
3708	C2	3855	B5	4870	B1				
3709	C3	3856	E4	4876	C5				
3710	B2	3857	E4	4879	E3				
3711	C2	3858	B5	4884	E2				
3712	A3	3859	B5	4885	E2				
3713	A1	3860	B4	4886	E2				
3714	A1	3861	C4	4887	E2				
3715	A1	3862	C4	4890	F2				
3716	D2	3863	D2	4893	G1				
3717	D2	3864	B4	4894	G1				
3718	C2	3866	F3	4896	H2				
3719	A2	3867	C4	4897	F3				
3727	C3	3868	B3	6871	B1				
3728	C3	3869	F4	6872	H2				
3730	C3	3870	F4	6873	H2				
3731	C2	3871	A2	6874	B1				
3732	C2	3872	B3	6875	A1				
3733	C2	3873	C3	6876	C5				
3734	D2	3874	B3	6877	C4				
3740	C4	3875	C2	6878	H2				
3741	C4	3876	C2	6879	C2				
3742	C4	3877	A2	7801	F3				
3743	C3	3878	A5	7805	B4				
3744	B4	3879	A2	7810	F2				

3CDC-LC-MB Componentside view



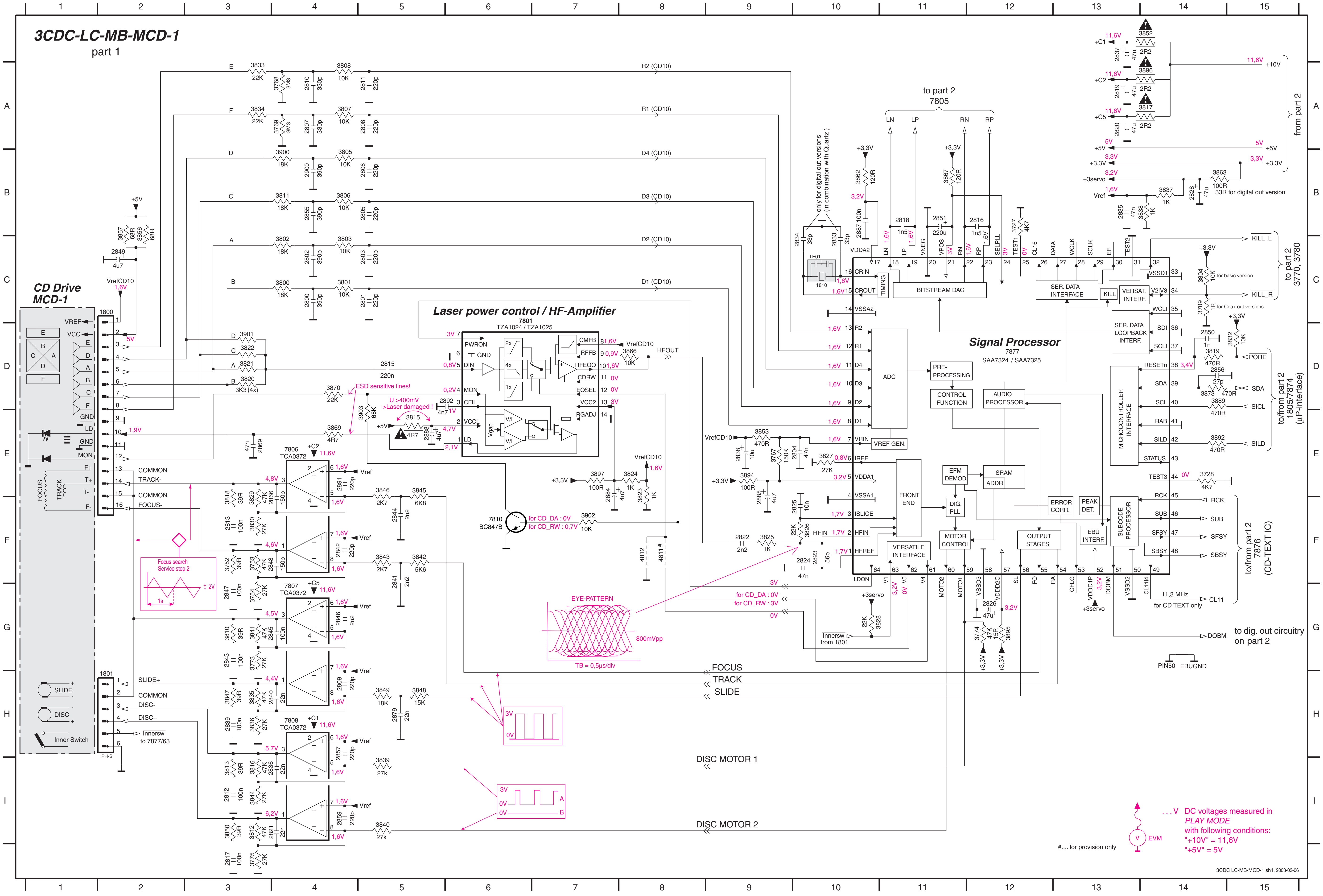
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LC-MB-DA11 Layout stage .3 2001-01-11

1800	D1
1801	G1
1810	C10
2800	C4
2801	C5
2802	C4
2803	C5
2804	E10
2805	B5
2806	B5
2807	A4
2808	A5
2809	H4
2810	A4
2811	A5
2812	I3
2813	F3
2815	D5
2816	B12
2817	I3
2818	B11
2819	A13
2820	A13
2821	I4
2822	F9
2823	F10
2824	F10
2825	F10
2826	G12
2828	B14
2833	C10
2834	C10
2835	B13
2836	I4
2837	A13
2838	E8
2839	H3
2840	H4
2841	G5
2842	F4
2843	G3
2844	F5
2845	G4
2846	G4
2847	G3
2848	F4
2849	C2
2850	D14
2851	B11
2855	B4
2856	D14
2857	H4
2859	I4
2866	F4
2869	E3
2879	H5
2884	E7
2885	F9
2887	B10
2888	E5
2891	E4
2892	D5
2900	B4
3709	C14
3727	B12
3728	E14
3752	F3
3753	F3
3754	G3
3767	E9
3768	A4
3769	A4
3773	G3
3774	G12
3775	I3
3800	C4
3801	C4
3802	C4
3803	C4
3804	C14
3805	B4
3806	B4
3807	A4
3808	A4
3810	G3
3811	B4
3812	I3
3813	I3
3815	E5
3816	I3
3817	A14
3818	F3
3819	D14
3820	D3
3821	D3
3822	D3
3823	E8
3824	E8
3825	F10
3826	F9
3827	E10
3828	G10
3829	F3
3830	F3
3832	D15
3833	A3
3834	A3
3835	H3
3836	H3
3837	B14
3838	B14
3839	I5
3840	I5
3841	G3
3842	F5
3843	F5
3844	I3
3845	E5
3846	E5
3847	H3
3848	H5
3849	H5
3850	I3
3852	A14
3853	E9
3856	C2
3857	C2
3862	B10
3863	B14
3866	D8
3867	B11
3869	E4
3870	D4
3873	D14
3889	D14
3892	E14
3894	E9
3895	G12
3896	A14
3897	E7
3900	B3
3901	D3
3902	F7
3903	E5
4811	F8
4812	F8
7801	E7
7806	E4
7807	G4
7808	H4
7810	F6
7877	D12

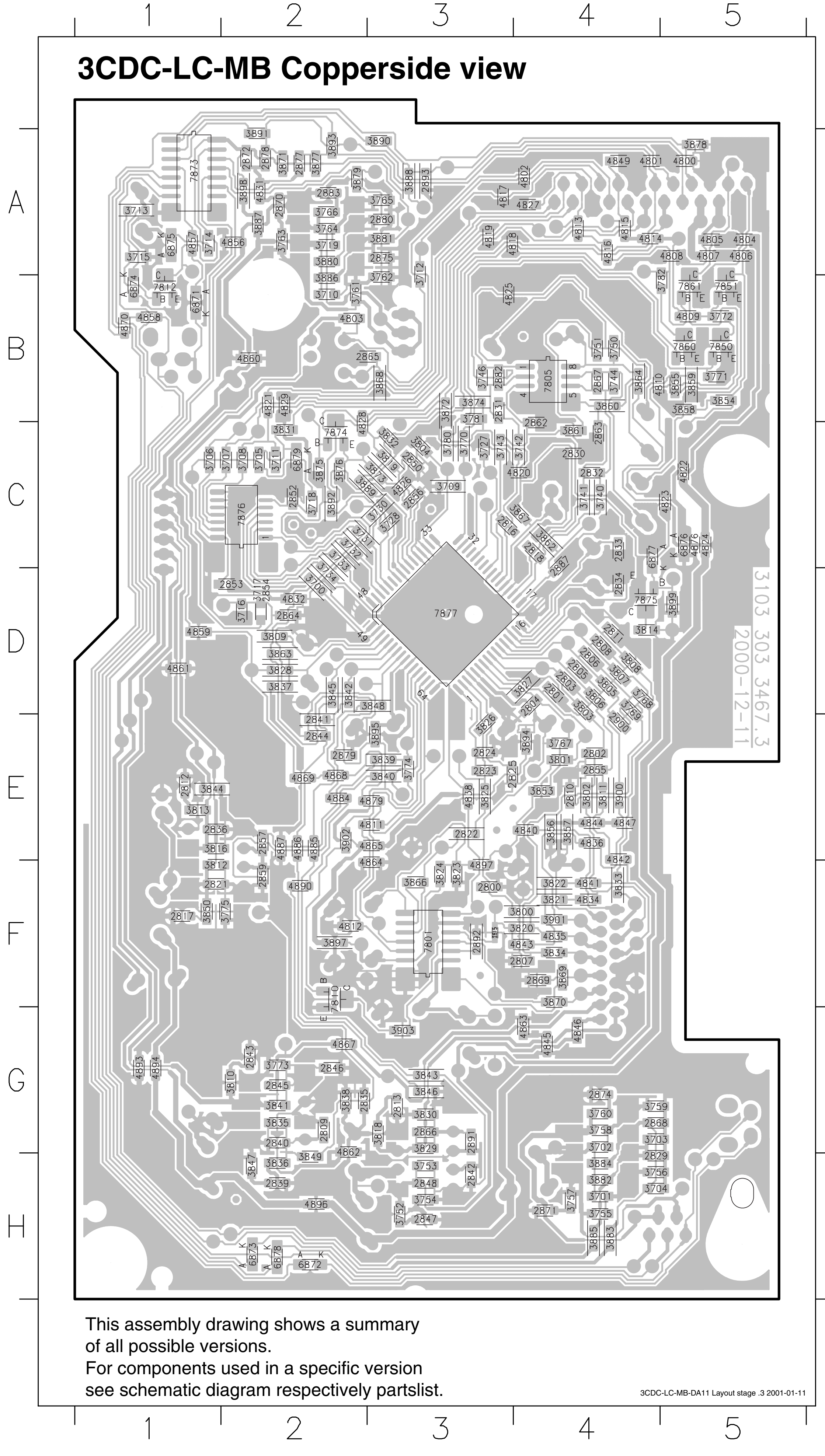
3CDC-LC-MB-MCD-1

part 1



CD Drive MCD-1
Laser power control / HF-Amplifier
7801 TZA1024 / TZA1025
Signal Processor
7877 SAA7324 / SAA7325
to part 2 7805
from part 2
to part 2 3770, 3780
to/from part 2 1805/7874 (µP-interface)
to/from part 2 7876 (CD-TEXT IC)
to dig. out circuitry on part 2
only for digital out versions (in combination with Quartz)
ESD sensitive lines!
U >400mV ->Laser damaged !
Focus search Service step 2
EYE-PATTERN
800mVpp
TB = 0,5µs/div
FOCUS
TRACK
SLIDE
DISC MOTOR 1
DISC MOTOR 2
7806 TCA0372
7807 TCA0372
7808 TCA0372
7810 BC847B
for CD_DA : 0V
for CD_RW : 0,7V
ADC
PRE-PROCESSING
CONTROL FUNCTION
AUDIO PROCESSOR
BITSTREAM DAC
SER. DATA INTERFACE
VERSAT. INTERF.
SER. DATA LOOPBACK INTERF.
MICROCONTROLLER INTERFACE
VREF GEN.
FRONT END
EFM DEMOD
SRAM
ADDR
DIG. PLL
MOTOR CONTROL
VERSATILE INTERFACE
OUTPUT STAGES
ERROR CORR.
PEAK DET.
EBU INTERF.
SUBCODE PROCESSOR
TIMING
KILL
Innersw from 1801
Innersw to 7877/63
SLIDE
DISC
Inner Switch
COMMON
TRACK-
FOCUS-
SLIDE+
DISC-
DISC+
KILL_L
KILL_R
PORE
SDA
SICL
SILD
RCK
SUB
SFSY
SBSY
CL11
DOBM
HFOUT
11,3 MHz
for CD TEXT only
33R for digital out version
for basic version
for Coax out versions
PIN50 EBUGND
#.... for provision only
. . . V DC voltages measured in PLAY MODE with following conditions:
"+10V" = 11,6V
"+5V" = 5V
EVM
3CDC LC-MB-MCD-1 sh1, 2003-03-06

3CDC-LC-MB Copperside view



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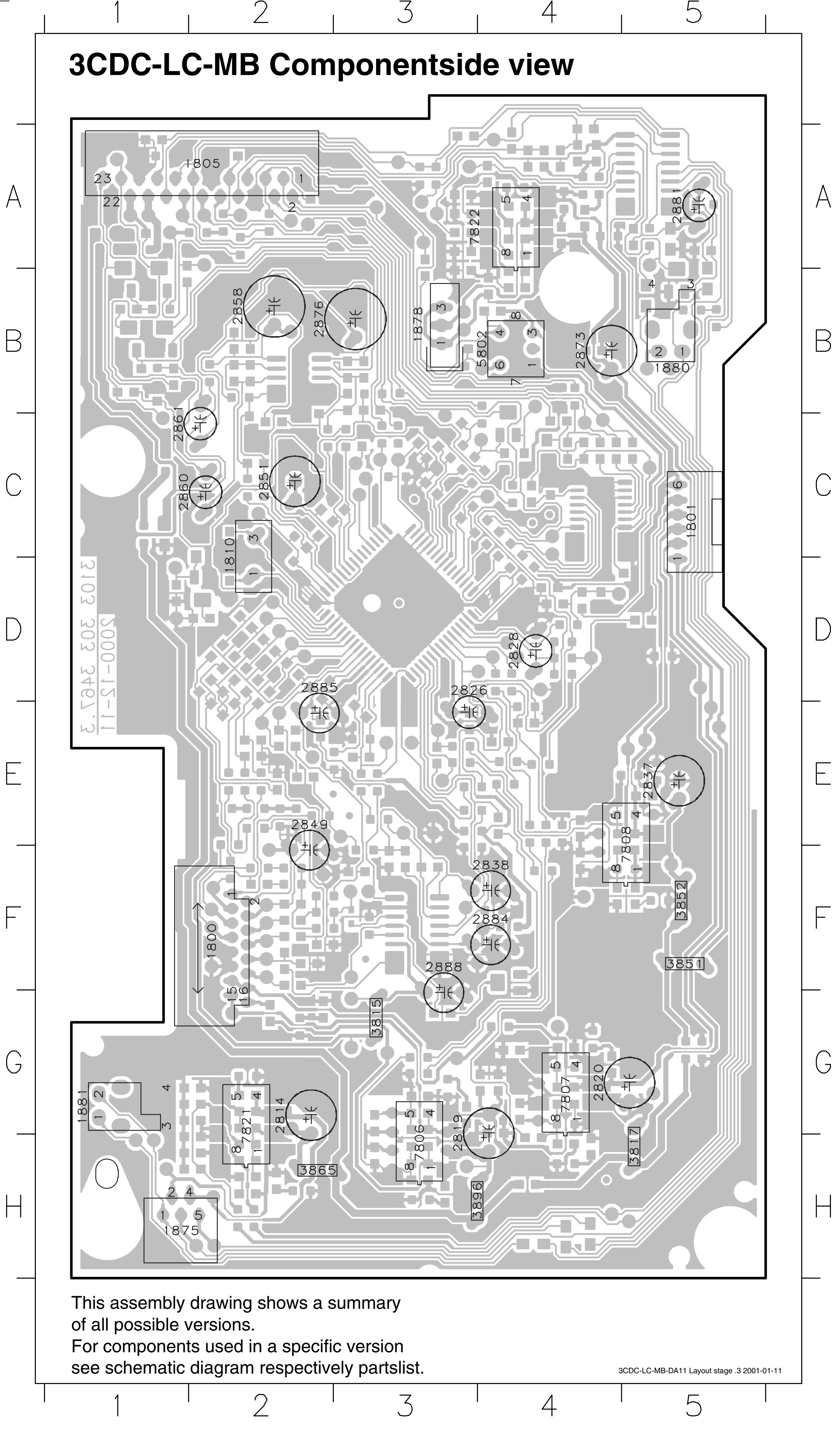
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LC-MB-DA11 Layout stage .3 2001-01-11

Mapping

Copperside								Componentside	
2800	F3	3746	B3	3880	A2	7812	B1	1800	F2
2801	D4	3750	B4	3881	A3	7850	B5	1801	C5
2802	E4	3751	B4	3882	H4	7851	B5	1805	A2
2803	D4	3752	H3	3883	H4	7860	B5	1810	C2
2804	D4	3753	H3	3884	H4	7861	B5	1875	H1
2805	D4	3754	H3	3885	H4	7873	A1	1878	B3
2806	D4	3755	H4	3886	B2	7874	C2	1880	B5
2807	F4	3756	H4	3887	A2	7875	D4	1881	G1
2808	D4	3757	H4	3888	A3	7876	C2	2814	G2
2809	G2	3758	G4	3889	C2	7877	D3	2819	G3
2810	E4	3759	G4	3890	A3			2820	G4
2811	D4	3760	G4	3891	A2			2826	D3
2812	E1	3761	B2	3892	C2			2828	D4
2813	G3	3762	B3	3893	A2			2837	E5
2815	F3	3763	A2	3894	E4			2838	F4
2816	C3	3764	A2	3895	E3			2849	E2
2817	F1	3765	A3	3897	F2			2851	C2
2818	C4	3766	A2	3898	A2			2858	B2
2821	F1	3767	E4	3899	D5			2860	C1
2822	E3	3768	D4	3900	E4			2861	C1
2823	E3	3769	D4	3901	F4			2873	B4
2824	E3	3770	C3	3902	E2			2876	B2
2825	E3	3771	B5	3903	G3			2881	A5
2829	H4	3772	B5	4800	A5			2884	F4
2830	C4	3773	G2	4801	A4			2885	D2
2831	B3	3774	E3	4802	A4			2888	F3
2832	C4	3775	F2	4803	B2			3815	G3
2833	C4	3780	C3	4804	A5			3817	H5
2834	D4	3781	B3	4805	A5			3851	F5
2835	G2	3782	B5	4806	A5			3852	F5
2836	E1	3800	F4	4807	A5			3865	H2
2839	H2	3801	E4	4808	A5			3896	H3
2840	G2	3802	E4	4809	B5			5802	B4
2841	E2	3803	D4	4810	B4			7806	H3
2842	H3	3804	C3	4811	E3			7807	G4
2843	G2	3805	D4	4812	F2			7808	E5
2844	E2	3806	D4	4813	A4			7821	G2
2845	G2	3807	D4	4814	A4			7822	A3
2846	G2	3808	D4	4815	A4				
2847	H3	3809	D2	4816	A4				
2848	H3	3810	G2	4817	A3				
2850	C3	3811	E4	4818	A3				
2852	C2	3812	F1	4819	A3				
2853	D2	3813	E1	4820	C4				
2854	D2	3814	D4	4821	B2				
2855	E4	3816	E1	4822	C5				
2856	C3	3818	G3	4823	C5				
2857	E2	3819	C3	4824	C5				
2859	F2	3820	F4	4825	B3				
2862	C4	3821	F4	4826	C3				
2863	C4	3822	F4	4827	A4				
2864	D2	3823	F3	4828	C2				
2865	B3	3824	F3	4829	B2				
2866	G3	3825	E3	4831	A2				
2867	B4	3826	E3	4832	D2				
2868	G4	3827	D4	4834	F4				
2869	F4	3828	D2	4835	F4				
2870	A2	3829	G3	4836	E4				
2871	H4	3830	G3	4838	E3				
2872	A2	3831	C2	4840	E4				
2874	G4	3832	C3	4841	F4				
2875	A3	3833	F4	4842	E4				
2877	A2	3834	F4	4843	F4				
2878	A2	3835	G2	4844	E4				
2879	E2	3836	H2	4845	G4				
2880	A3	3837	D2	4846	G4				
2882	B3	3838	G2	4847	E4				
2883	A2	3839	E3	4849	A4				
2887	C4	3840	E3	4856	A2				
2891	G3	3841	G2	4857	A1				
2892	F3	3842	D2	4858	B1				
2893	A3	3843	G3	4859	D1				
2900	E4	3844	E1	4860	B2				
3700	D2	3845	D2	4861	D1				
3701	H4	3846	G3	4862	G2				
3702	G4	3847	H2	4863	G4				
3703	G4	3848	D3	4864	F3				
3704	H4	3849	H2	4865	E3				
3705	C2	3850	F1	4867	G2				
3706	C1	3853	E4	4868	E2				
3707	C2	3854	B5	4869	E2				
3708	C2	3855	B5	4870	B1				
3709	C3	3856	E4	4876	C5				
3710	B2	3857	E4	4879	E3				
3711	C2	3858	B5	4884	E2				
3712	A3	3859	B5	4885	E2				
3713	A1	3860	B4	4886	E2				
3714	A1	3861	C4	4887	E2				
3715	A1	3862	C4	4890	F2				
3716	D2	3863	D2	4893	G1				
3717	D2	3864	B4	4894	G1				
3718	C2	3866	F3	4896	H2				
3719	A2	3867	C4	4897	F3				
3727	C3	3868	B3	6871	B1				
3728	C3	3869	F4	6872	H2				
3730	C3	3870	F4	6873	H2				
3731	C2	3871	A2	6874	B1				
3732	C2	3872	B3	6875	A1				
3733	C2	3873	C3	6876	C5				
3734	D2	3874	B3	6877	C4				
3740	C4	3875	C2	6878	H2				
3741	C4	3876	C2	6879	C2				
3742	C4	3877	A2	7801	F3				
3743	C3	3878	A5	7805	B4				
3744	B4	3879	A2	7810	F2				

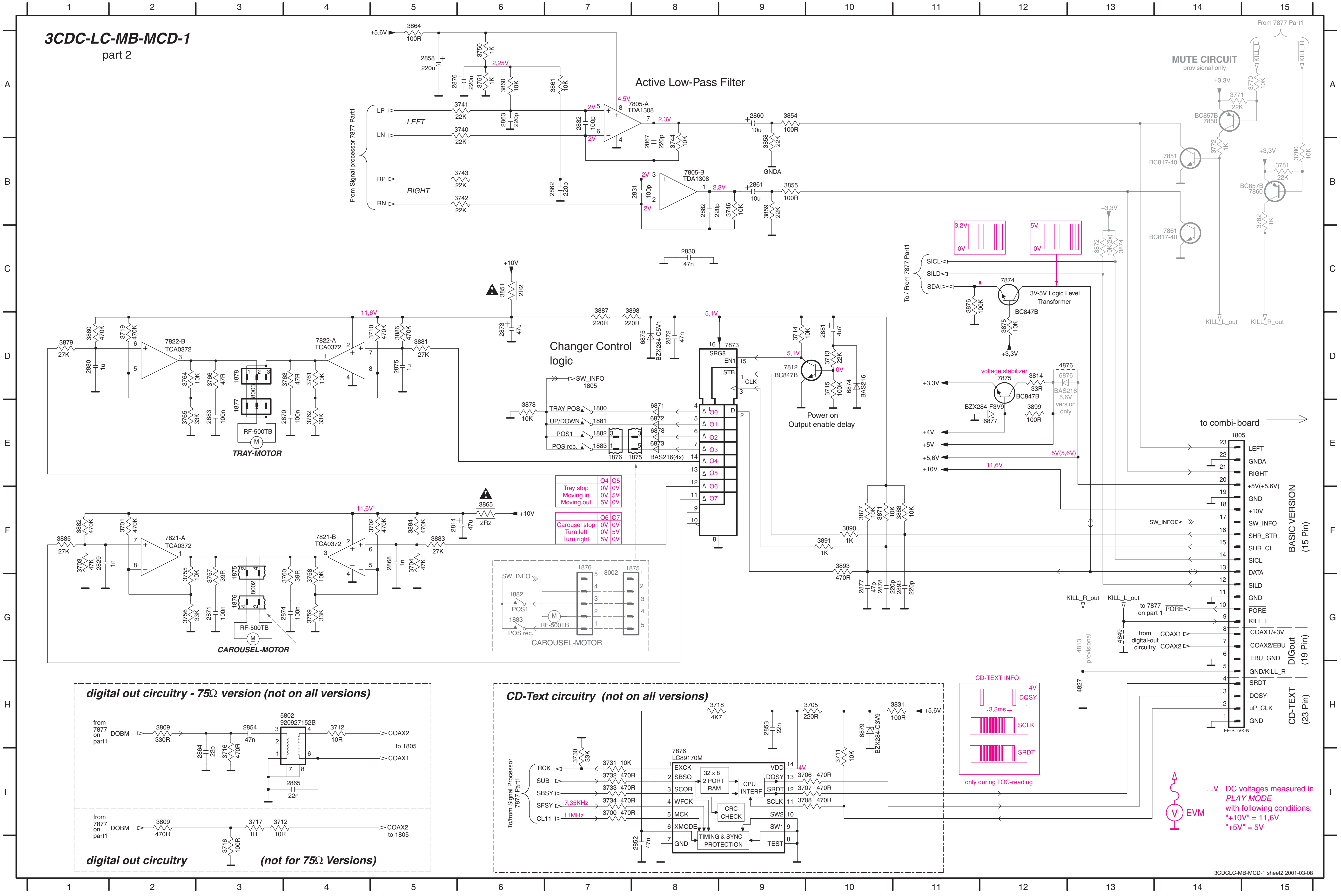
3CDC-LC-MB Componentside view



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LC-MB-DA11 Layout stage .3 2001-01-11

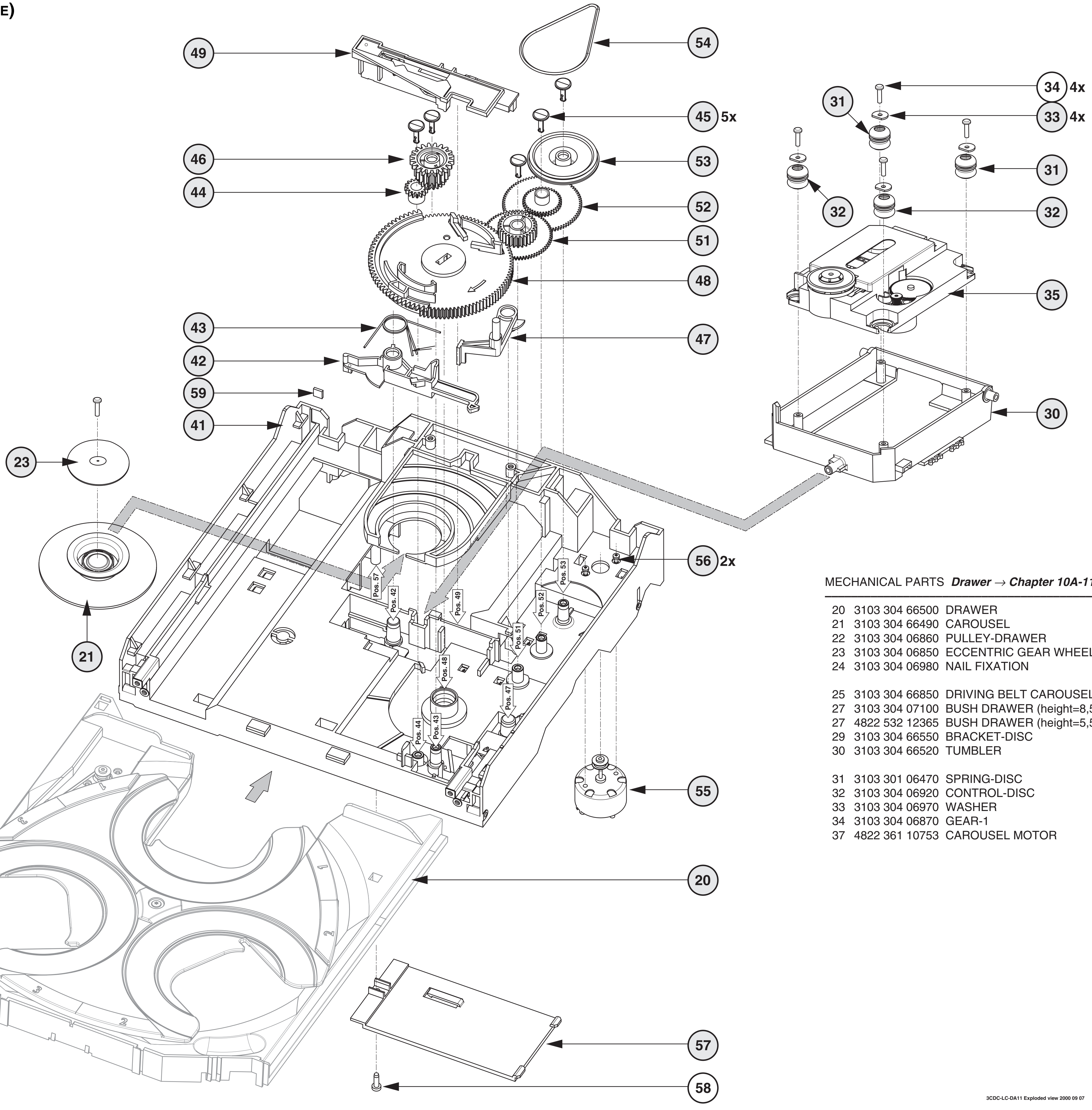
1805	E14
1850	G3
1875	E8
1876	E7
1877	E3
1878	D3
1878	G3
1880	E7
1881	E7
1882	E7
1883	E7
2814	F6
2829	F2
2830	C8
2831	B8
2832	A7
2852	I8
2853	H9
2854	H3
2858	A5
2860	A9
2861	B9
2862	B7
2863	A6
2864	I3
2865	I4
2867	B8
2868	F5
2870	E4
2871	G3
2872	D8
2873	D6
2874	G4
2875	D5
2876	A6
2877	G10
2878	G10
2880	D1
2881	D10
2882	B8
2883	E3
2893	G11
3372	C13
3374	C13
3700	I7
3701	F2
3702	F5
3703	F1
3704	F5
3705	H10
3706	I10
3707	I10
3708	I10
3710	D5
3711	I10
3712	H4
3713	D10
3714	D9
3715	D10
3716	I3
3718	H8
3719	D2
3730	I7
3730	I7
3732	I7
3733	I7
3734	I7
3740	A6
3741	A6
3742	B6
3743	B6
3744	B8
3746	B9
3750	A6
3751	A6
3755	G2
3756	G2
3757	G3
3758	G4
3759	G4
3760	G4
3761	D4
3762	E4
3763	D4
3764	D2
3765	E2
3766	D3
3770	A15
3771	A14
3772	B14
3780	B15
3781	B15
3782	B15
3809	H2
3814	D12
3831	H11
3851	C6
3854	A9
3855	B9
3858	B9
3859	B9
3860	A6
3861	A7
3864	A5
3865	F6
3871	F10
3875	D12
3876	C11
3877	F10
3878	E6
3879	D1
3880	D1
3881	D5
3882	F1
3883	F5
3884	F5
3885	F1
3886	D5
3887	D7
3888	F11
3890	F10
3891	F10
3893	F10
3898	D7
3899	E12
4813	G13
4827	H13
4849	G13
4876	D12
5802	H4
6871	E8
6872	E8
6873	E8
6874	D10
6875	D8
6876	D12
6877	E12
6878	E8
6879	H10
7805-A	A7
7805-B	B8
7812	D9
7821-A	F2
7821-B	F4
7822-A	D4
7822-B	D2
7850	A14
7851	B14
7860	B15
7861	C14
7873	D9
7874	C12
7875	D12
7876	I8


3CDC-LC-MB-MCD-1
part 2
Active Low-Pass Filter
7805-A TDA1308
7805-B TDA1308
LEFT
RIGHT
LP
LN
RP
RN
From Signal processor 7877 Part1
MUTE CIRCUIT
provisional only
From 7877 Part1
KILL_L
KILL_R
KILL_L_out
KILL_R_out
BC857B 7850
BC857B 7860
7851 BC817-40
7861 BC817-40
To / From 7877 Part1
SICL
SILD
SDA
7874
3V-5V Logic Level Transformer
BC847B
voltage stabilizer
7875
BZX284-F3V9
Changer Control logic
7873 SRG8
7812 BC847B
Power on Output enable delay
SW_INFO
TRAY POS
UP/DOWN
POS1
POS rec.
BAS216(4x)
7822-B TCA0372
7822-A TCA0372
7821-A TCA0372
7821-B TCA0372
RF-500TB
TRAY-MOTOR
CAROUSEL-MOTOR
Tray stop
Moving in
Moving out
Carousel stop
Turn left
Turn right
to combi-board
1805
LEFT
GNDA
RIGHT
+5V(+5,6V)
GND
+10V
SW_INFO
SHR_STR
SHR_CL
SICL
DATA
SILD
GND
PORE
KILL_L
COAX1/+3V
COAX2/EBU
EBU_GND
GND/KILL_R
SRDT
DQSY
uP_CLK
GND
BASIC VERSION (15 Pin)
DIGout (19 Pin)
CD-TEXT (23 Pin)
digital out circuitry - 75Ω version (not on all versions)
from 7877 on part1
DOBM
5802 920927152B
COAX2
to 1805
COAX1
digital out circuitry
(not for 75Ω Versions)
CD-Text circuitry (not on all versions)
To/from Signal Processor 7877 Part1
RCK
SUB
SBSY
SFSY
CL11
7,35KHz
11MHz
7876 LC89170M
EXCK
SBSO
SCOR
WFCK
MCK
XMODE
GND
VDD
DQSY
SRDT
SCLK
SW2
SW1
TEST
32 x 8 2 PORT RAM
CPU INTERF
CRC CHECK
TIMING & SYNC PROTECTION
CD-TEXT INFO
DQSY
SCLK
SRDT
only during TOC-reading
...V DC voltages measured in PLAY MODE
with following conditions:
"+10V" = 11,6V
"+5V" = 5V
EVM
3CDCLC-MB-MCD-1 sheet2 2001-03-08

EXPLODED VIEW (3CDC-LC-MCD-1 MODULE)

MECHANICAL PARTS *Loader → this page*

20	3103 304 66500	DRAWER
21	3140 114 29070	PRESSURE RING-MCD-1
23	3140 111 21270	METAL RING-MCD-1
30	3103 304 66560	SUPPORT
31	4822 529 10386	DAMPER - RUBBER (Rear)
32	4822 529 10387	DAMPER - RUBBER (Front)
33	3103 304 06970	WASHER
35	3103 309 05330	CD Drive (Mitsumi MCD-1)
41	3103 304 66480	FRAME
42	3103 304 66540	BRACKET-GUIDING
43	3103 301 06460	SPRING-GUIDING
44	3103 304 06890	GEAR-3
45	3103 304 06980	NAIL FIXATION
46	3103 304 06880	GEAR-2
47	3103 304 66530	BRACKET-LOAD
48	3103 304 06910	CAM
49	3103 304 66510	GUIDING
51	3103 304 06900	GEAR-4
52	3103 304 06870	GEAR-1
53	3103 304 06960	PULLEY-FRAME
54	3103 304 66910	DRIVING-BELT-DRAWER
55	4822 361 10753	TRAY MOTOR
56	4822 502 12548	SCREW M2,6X3,5
57	3103 304 69880	COVER-MCD-1
59	4822 466 12146	RUBBER



MECHANICAL PARTS *Drawer → Chapter 10A-11*

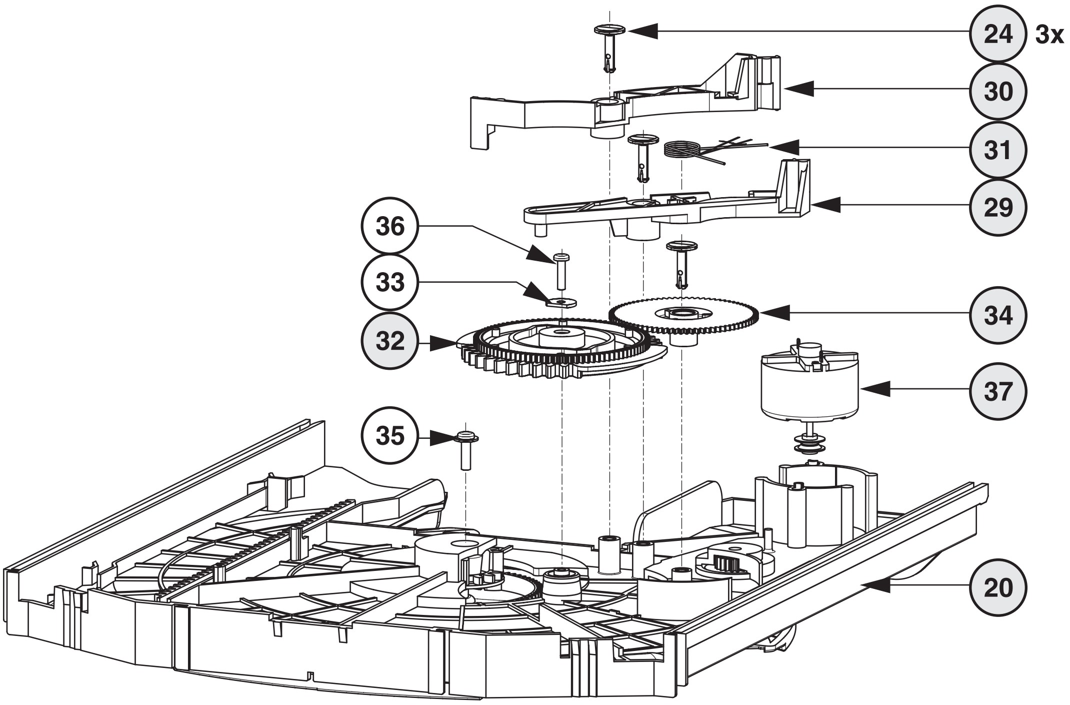
20	3103 304 66500	DRAWER
21	3103 304 66490	CAROUSEL
22	3103 304 06860	PULLEY-DRAWER
23	3103 304 06850	ECCENTRIC GEAR WHEEL
24	3103 304 06980	NAIL FIXATION
25	3103 304 66850	DRIVING BELT CAROUSEL
27	3103 304 07100	BUSH DRAWER (height=8,5mm,d=16mm)
27	4822 532 12365	BUSH DRAWER (height=5,5mm,d=9,4mm)
29	3103 304 66550	BRACKET-DISC
30	3103 304 66520	TUMBLER
31	3103 301 06470	SPRING-DISC
32	3103 304 06920	CONTROL-DISC
33	3103 304 06970	WASHER
34	3103 304 06870	GEAR-1
37	4822 361 10753	CAROUSEL MOTOR

Ⓧ spare part

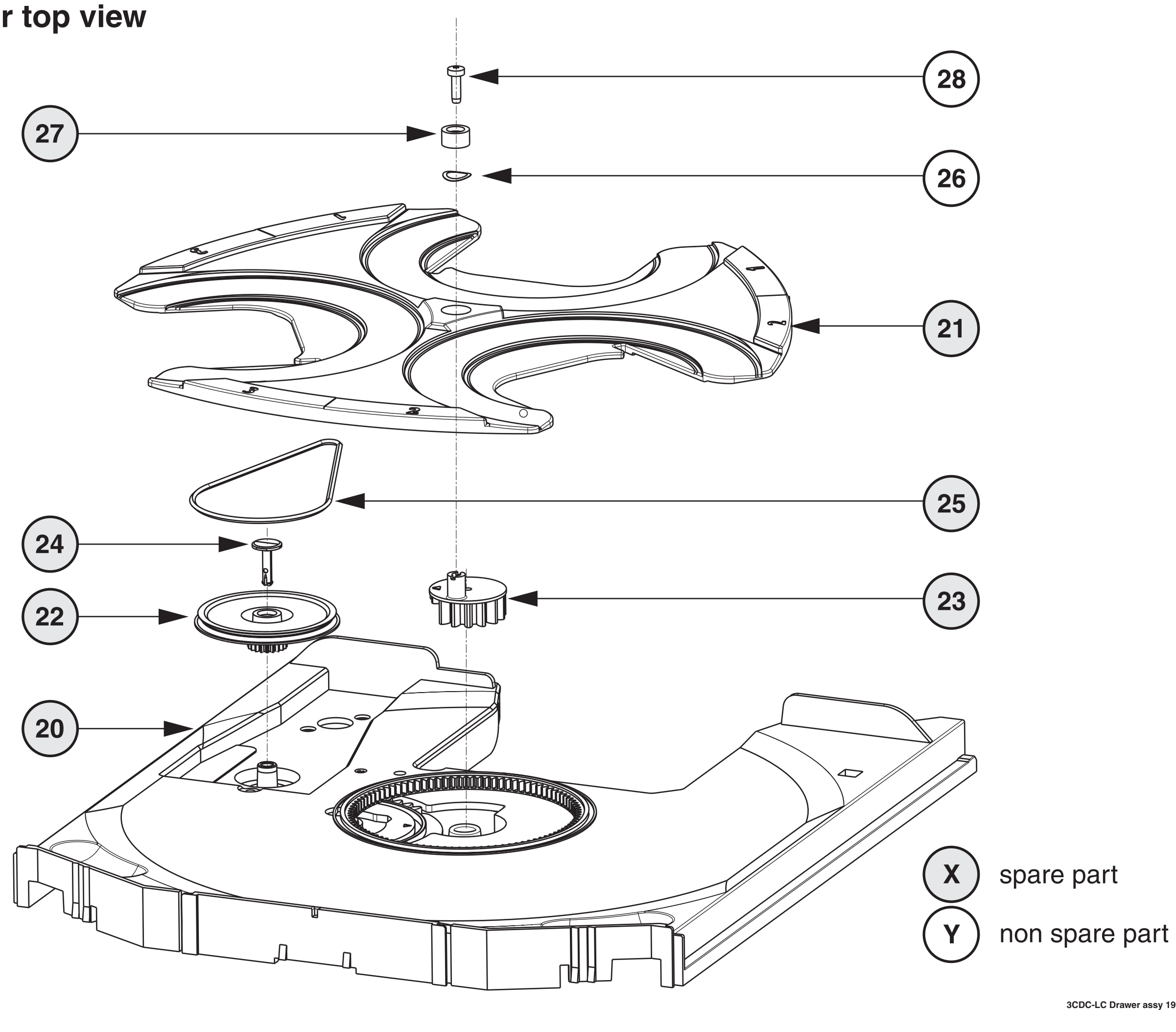
Ⓨ non spare part

3CDC-LC-DA11 Exploded view 2000 09 07

Drawer bottom view


24
3x
30
31
29
36
33
32
34
37
35
20

Drawer top view


28
27
26
21
25
24
22
23
20
X
spare part
Y
non spare part

3CDC-LC Drawer assy 1999 09 13

ELECTRICAL PARTSLIST 3CDC-LC-MB-MCD-1 MODULE

MISCELLANEOUS

35	3103 309 05330	CD Drive (Mitsumi MCD-1)
1800	2422 025 12133	FLEX FOIL CONNECTOR, 16PIN
1805	4822 265 10979	FLEX FOIL CONNECTOR, **15PIN**
1805	4822 265 11545	FLEX FOIL CONNECTOR, **19PIN**
1875	4822 267 10958	FLEX FOIL CONNECTOR, 5PIN
1876	2422 025 08332	FLEX FOIL CONNECTOR, 5PIN
1880	4822 276 13503	SWITCH, Tray in endposition
1881	4822 276 13503	SWITCH, Drive up/down
1882	4822 276 13503	SWITCH, Position 1
1883	4822 276 13503	SWITCH, Position recogiced
8002	3103 308 91990	FLEX FOIL CABLE 5P, 200mm
8005	3103 308 92620	FLEX FOIL CABLE 16P, 170mm

CAPACITORS

2800©	4822 126 14315	390pF	5%	50V
2801©	4822 126 13883	220pF	5%	50V
2802©	4822 126 14315	390pF	5%	50V
2803©	4822 126 13883	220pF	5%	50V
2804©	3198 024 44730	47nF	5%	50V
2805©	4822 126 13883	220pF	5%	50V
2806©	4822 126 13883	220pF	5%	50V
2807©	4822 126 14241	330pF		50V
2808©	4822 126 13883	220pF	5%	50V
2809©	4822 126 13883	220pF	5%	50V
2810©	4822 126 14241	330pF		50V
2811©	4822 126 13883	220pF	5%	50V
2812©	4822 126 14585	100nF	10%	50V
2813©	4822 126 14585	100nF	10%	50V
2814	4822 124 40433	47µF	20%	25V
2815©	4822 126 13879	220nF	20%	16V
2816©	4822 126 13344	1,5nF	5%	63V
2817©	4822 126 14585	100nF	10%	50V
2818©	4822 126 13344	1,5nF	5%	63V
2819	4822 124 40433	47µF	20%	25V
2820	4822 124 40433	47µF	20%	25V
2821©	5322 122 32654	22nF	10%	63V
2822©	2222 861 15222	2,2nF	10%	50V
2823©	4822 126 14225	56pF	5%	50V
2824©	4822 126 13751	47nF	10%	50V
2825©	5322 126 11583	10nF	10%	63V
2826	4822 124 12362	47µF	20%	4V
2828	4822 124 12362	47µF	20%	4V
2829©	5322 126 11578	1nF	10%	63V
2830©	4822 126 13751	47nF	10%	50V
2831©	4822 122 31765	100pF	5%	50V
2832©	4822 122 31765	100pF	5%	50V
2833©	4822 126 11671	33pF	5%	50V
2834©	4822 126 11671	33pF	5%	50V
2835©	3198 024 44730	47nF	5%	50V
2836©	5322 122 32654	22nF	10%	63V
2837	4822 124 40433	47µF	20%	25V
2838	4822 124 40248	10µF	20%	63V
2839©	4822 126 14585	100nF	10%	50V
2840©	5322 122 32654	22nF	10%	63V
2841©	4822 122 33127	2,2nF	10%	63V
2842©	4822 126 13883	220pF	5%	50V
2843©	4822 126 14585	100nF	10%	50V
2844©	4822 122 33127	2,2nF	10%	63V
2845©	4822 126 14585	100nF	10%	50V
2846©	4822 126 13883	220pF	5%	50V
2847©	4822 126 14585	100nF	10%	50V
2848©	4822 122 33753	150pF	5%	50V
2849	4822 124 40769	4,7µF	20%	100V
2850©	5322 126 11578	1nF	10%	63V

CAPACITORS

2851	4822 124 42383	220µF	20%	4V
2854©	4822 126 13751	47nF	10%	50V
2855©	4822 126 14315	390pF	5%	50V
2856©	4822 126 11669	27pF	10%	50V
2857©	4822 126 13883	220pF	5%	50V
2858	4822 124 12245	220µF	20%	16V
2859©	4822 126 13883	220pF	5%	50V
2860	4822 124 11947	10µF	20%	16V
2861	4822 124 11947	10µF	20%	16V
2862©	4822 126 13883	220pF	5%	50V
2863©	4822 126 13883	220pF	5%	50V
2864©	4822 122 33761	22pF	5%	50V
2865©	4822 126 14494	22nF	10%	25V
2866©	4822 122 33753	150pF	5%	50V
2867©	4822 126 13883	220pF	5%	50V
2868©	5322 126 11578	1nF	10%	63V
2869©	3198 024 44730	47nF	5%	50V
2870©	4822 126 14585	100nF	10%	50V
2871©	4822 126 14585	100nF	10%	50V
2872©	3198 024 44730	47nF	5%	50V
2873	4822 124 40433	47µF	20%	25V
2874©	4822 126 14585	100nF	10%	50V
2875©	3198 017 41050	1µF	20%	10V
2876	4822 124 12245	220µF	20%	16V
2877©	4822 122 33777	47pF	5%	63V
2878©	4822 126 13883	220pF	5%	50V
2879©	5322 122 32654	22nF	10%	63V
2880©	3198 017 41050	1µF	20%	10V
2881	4822 124 40769	4,7µF	20%	100V
2882©	4822 126 13883	220pF	5%	50V
2883©	4822 126 14585	100nF	10%	50V
2884	4822 124 40769	4,7µF	20%	100V
2885	4822 124 40769	4,7µF	20%	100V
2887©	4822 126 14585	100nF	10%	50V
2888	4822 124 40769	4,7µF	20%	100V
2891©	4822 126 13883	220pF	5%	50V
2892©	5322 126 10223	4,7nF	10%	63V
2893©	4822 122 33575	220pF	5%	50V
2900©	4822 126 14315	390pF	5%	50V

RESISTORS

3701©	4822 051 30474	470kΩ	5%	0,06W
3702©	4822 051 30474	470kΩ	5%	0,06W
3703©	4822 117 12925	47kΩ	1%	0,06W
3704©	4822 117 12925	47kΩ	1%	0,06W
3709©	4822 117 10833	10kΩ	1%	0,1W
3710©	4822 051 30474	470kΩ	5%	0,06W
3712©	4822 051 30109	10Ω	5%	0,06W
3713©	4822 051 20223	22kΩ	5%	0,1W
3714©	4822 051 30103	10kΩ	5%	0,06W
3715©	4822 117 13632	100kΩ	1%	0,06W
3716©	4822 051 30471	470Ω	5%	0,06W
3719©	4822 051 30474	470kΩ	5%	0,06W
3727©	4822 051 30472	4,7kΩ	5%	0,06W
3728©	4822 051 30472	4,7kΩ	5%	0,06W
3730©	4822 051 20333	33kΩ	5%	0,1W
3740©	4822 051 20223	22kΩ	5%	0,1W
3741©	4822 051 20223	22kΩ	5%	0,1W
3742©	4822 051 20223	22kΩ	5%	0,1W
3743©	4822 051 20223	22kΩ	5%	0,1W
3744©	4822 051 30103	10kΩ	5%	0,06W
3746©	4822 051 30103	10kΩ	5%	0,06W
3750©	4822 051 30102	1kΩ	5%	0,06W
3751©	4822 051 30102	1kΩ	5%	0,06W

ELECTRICAL PARTSLIST 3CDC-LC-MB-MCD-1 MODULE

RESISTORS

3752©	4822 051 20399	39Ω	5%	0,1W
3753©	4822 117 10834	47kΩ	1%	0,1W
3754©	4822 117 12024	27kΩ	1%	0,1W
3755©	4822 117 10833	10kΩ	1%	0,1W
3756©	2120 108 92632	33kΩ	1%	0,1W
3757©	4822 051 20399	39Ω	5%	0,1W
3758©	4822 117 10833	10kΩ	1%	0,1W
3759©	2120 108 92632	33kΩ	1%	0,1W
3760©	4822 051 20399	39Ω	5%	0,1W
3761©	4822 117 10833	10kΩ	1%	0,1W
3762©	2120 108 92632	33kΩ	1%	0,1W
3763©	4822 051 30479	47Ω	5%	0,06W
3764©	4822 117 10833	10kΩ	1%	0,1W
3765©	2120 108 92632	33kΩ	1%	0,1W
3766©	4822 051 30479	47Ω	5%	0,06W
3773©	4822 117 12024	27kΩ	1%	0,1W
3775©	4822 117 12024	27kΩ	1%	0,1W
3800©	4822 117 10965	18kΩ	2%	0,1W
3801©	4822 051 30103	10kΩ	5%	0,06W
3802©	4822 117 10965	18kΩ	2%	0,1W
3803©	4822 051 30103	10kΩ	5%	0,06W
3804©	4822 051 30103	10kΩ	5%	0,06W
3805©	4822 051 30103	10kΩ	5%	0,06W
3806©	4822 051 30103	10kΩ	5%	0,06W
3807©	4822 051 30103	10kΩ	5%	0,06W
3808©	4822 051 30103	10kΩ	5%	0,06W
3809©	4822 117 13577	330Ω	1%	0,1W
3810©	4822 051 20399	39Ω	5%	0,1W
3811©	4822 117 10965	18kΩ	2%	0,1W
3812©	4822 117 10834	47kΩ	1%	0,1W
3813©	4822 051 20399	39Ω	5%	0,1W
3814©	4822 051 30339	33Ω	5%	0,06W
3815	4822 052 10478	4,7Ω	5%	NFR
3816©	4822 117 10834	47kΩ	1%	0,1W
3817	4822 052 10228	2,2Ω	5%	0,33W
3818©	4822 051 20399	39Ω	5%	0,1W
3819©	4822 051 20471	470Ω	5%	0,1W
3820©	4822 051 20332	3,3kΩ	5%	0,1W
3821©	4822 051 20332	3,3kΩ	5%	0,1W
3822©	4822 051 20332	3,3kΩ	5%	0,1W
3823©	4822 051 30102	1kΩ	5%	0,06W
3824©	4822 051 30102	1kΩ	5%	0,06W
3825©	4822 051 10102	1kΩ	2%	0,25W
3826©	4822 051 30223	22kΩ	5%	0,06W
3827©	4822 051 20273	27kΩ	5%	0,1W
3828©	4822 051 20223	22kΩ	5%	0,1W
3829©	4822 117 10834	47kΩ	1%	0,1W
3830©	4822 117 12024	27kΩ	1%	0,1W
3831©	4822 051 30101	100Ω	5%	0,06W
3832©	4822 051 30103	10kΩ	5%	0,06W
3833©	4822 051 20223	22kΩ	5%	0,1W
3834©	4822 051 20223	22kΩ	5%	0,1W
3835©	4822 117 10834	47kΩ	1%	0,1W
3836©	4822 117 12024	27kΩ	1%	0,1W
3837©	4822 051 10102	1kΩ	2%	0,25W
3838©	4822 051 30102	1kΩ	5%	0,06W
3839©	4822 051 20273	27kΩ	5%	0,1W
3840©	4822 051 20273	27kΩ	5%	0,1W
3841©	4822 117 10834	47kΩ	1%	0,1W
3842©	4822 051 20562	5,6kΩ	5%	0,1W
3843©	4822 117 12955	2,7kΩ	1%	0,1W
3844©	4822 117 12024	27kΩ	1%	0,1W
3845©	4822 117 11507	6,8kΩ	1%	0,1W
3846©	4822 117 12955	2,7kΩ	1%	0,1W

RESISTORS

3847©	4822 051 20399	39Ω	5%	0,1W
3848©	4822 116 83933	15kΩ	1%	0,1W
3849©	4822 051 30183	18kΩ	5%	0,06W
3850©	4822 051 20399	39Ω	5%	0,1W
3851	4822 052 10228	2,2Ω	5%	0,33W
3852	4822 052 10228	2,2Ω	5%	0,33W
3853©	4822 051 30471	470Ω	5%	0,06W
3854©	4822 051 30101	100Ω	5%	0,06W
3855©	4822 051 30101	100Ω	5%	0,06W
3856©	4822 117 12521	68Ω	1%	0,1W
3857©	4822 117 12521	68Ω	1%	0,1W
3858©	4822 051 30223	22kΩ	5%	0,06W
3859©	4822 051 20223	22kΩ	5%	0,1W
3860©	4822 117 10833	10kΩ	1%	0,1W
3861©	4822 051 30103	10kΩ	5%	0,06W
3862©	4822 051 20121	120Ω	5%	0,1W
3863©	4822 051 20339	33Ω	5%	0,1W
3864©	4822 117 11373	100R	1%	0,1W
3865	4822 052 10228	2,2Ω	5%	0,33W
3866©	4822 051 30103	10kΩ	5%	0,06W
3867©	4822 051 30121	120Ω	5%	0,06W
3869©	4822 117 13608	4,7Ω	5%	0,06W
3870©	4822 051 20223	22kΩ	5%	0,1W
3871©	4822 051 30103	10kΩ	5%	0,06W
3873©	4822 051 20471	470Ω	5%	0,1W
3875©	4822 051 30103	10kΩ	5%	0,06W
3876©	4822 117 13632	100kΩ	1%	0,06W
3877©	4822 051 30103	10kΩ	5%	0,06W
3878©	4822 051 30103	10kΩ	5%	0,06W
3879©	4822 051 30273	27kΩ	5%	0,06W
3880©	4822 051 30474	470kΩ	5%	0,06W
3881©	4822 051 30273	27kΩ	5%	0,06W
3882©	4822 051 30474	470kΩ	5%	0,06W
3883©	4822 051 20273	27kΩ	5%	0,1W
3884©	4822 051 30474	470kΩ	5%	0,06W
3885©	4822 051 20273	27kΩ	5%	0,1W
3886©	4822 051 30474	470kΩ	5%	0,06W
3887©	4822 051 30221	220Ω	5%	0,06W
3888©	4822 117 10833	10kΩ	1%	0,1W
3889©	4822 051 20471	470Ω	5%	0,1W
3890©	4822 051 30102	1kΩ	5%	0,06W
3891©	4822 051 30102	1kΩ	5%	0,06W
3892©	4822 051 20471	470Ω	5%	0,1W
3893©	4822 051 30471	470Ω	5%	0,06W
3894©	4822 051 30101	100Ω	5%	0,06W
3895©	4822 117 12971	15Ω	5%	0,06W
3896	4822 052 10228	2,2Ω	5%	0,33W
3897©	4822 117 11373	100R	1%	0,1W
3898©	4822 117 11503	220Ω	5%	0,1W
3899©	4822 051 30101	100Ω	5%	0,06W
3900©	4822 117 10965	18kΩ	2%	0,1W
3901©	4822 051 30332	3,3kΩ	5%	0,06W
3902©	4822 051 30103	10kΩ	5%	0,06W
3903©	4822 051 30683	68kΩ	5%	0,06W
4800©	4822 051 20008	CHIP JUMPER 0805		
4801©	4822 051 20008	CHIP JUMPER 0805		
4802©	4822 051 20008	CHIP JUMPER 0805		
4804©	4822 051 20008	CHIP JUMPER 0805		
4805©	4822 051 30008	CHIP JUMPER 0603		
4806©	4822 051 20008	CHIP JUMPER 0805		
4807©	4822 051 20008	CHIP JUMPER 0805		
4808©	4822 051 20008	CHIP JUMPER 0805		
4809©	4822 051 20008	CHIP JUMPER 0805		
4810©	4822 051 20008	CHIP JUMPER 0805		

ELECTRICAL PARTSLIST 3CDC-LC-MB-MCD-1 MODULE

RESISTORS

4812©	4822 051 20008	CHIP JUMPER 0805
4814©	4822 051 20008	CHIP JUMPER 0805
4815©	4822 051 20008	CHIP JUMPER 0805
4816©	4822 051 20008	CHIP JUMPER 0805
4817©	4822 051 30008	CHIP JUMPER 0603
4818©	4822 051 20008	CHIP JUMPER 0805
4819©	4822 051 20008	CHIP JUMPER 0805
4820©	4822 051 20008	CHIP JUMPER 0805
4821©	4822 051 20008	CHIP JUMPER 0805
4822©	4822 051 20008	CHIP JUMPER 0805
4823©	4822 051 20008	CHIP JUMPER 0805
4824©	4822 051 20008	CHIP JUMPER 0805
4825©	4822 051 30008	CHIP JUMPER 0603
4826©	4822 051 20008	CHIP JUMPER 0805
4827©	4822 051 30008	CHIP JUMPER 0603
4828©	4822 051 20008	CHIP JUMPER 0805
4831©	4822 051 20008	CHIP JUMPER 0805
4832©	4822 051 30008	CHIP JUMPER 0603
4834©	4822 051 30008	CHIP JUMPER 0603
4835©	4822 051 30008	CHIP JUMPER 0603
4836©	4822 051 20008	CHIP JUMPER 0805
4838©	4822 051 20008	CHIP JUMPER 0805
4840©	4822 051 20008	CHIP JUMPER 0805
4841©	4822 051 20008	CHIP JUMPER 0805
4842©	4822 051 20008	CHIP JUMPER 0805
4843©	4822 051 20008	CHIP JUMPER 0805
4844©	4822 051 20008	CHIP JUMPER 0805
4845©	4822 051 20008	CHIP JUMPER 0805
4846©	4822 051 30008	CHIP JUMPER 0603
4847©	4822 051 20008	CHIP JUMPER 0805
4849©	4822 051 30008	CHIP JUMPER 0603
4856©	4822 051 20008	CHIP JUMPER 0805
4857©	4822 051 20008	CHIP JUMPER 0805
4858©	4822 051 20008	CHIP JUMPER 0805
4859©	4822 051 30008	CHIP JUMPER 0603
4860©	4822 051 30008	CHIP JUMPER 0603
4861©	4822 051 20008	CHIP JUMPER 0805
4862©	4822 051 30008	CHIP JUMPER 0603
4863©	4822 051 30008	CHIP JUMPER 0603
4864©	4822 051 20008	CHIP JUMPER 0805
4865©	4822 051 20008	CHIP JUMPER 0805
4867©	4822 051 20008	CHIP JUMPER 0805
4868©	4822 051 20008	CHIP JUMPER 0805
4869©	4822 051 20008	CHIP JUMPER 0805
4870©	4822 051 20008	CHIP JUMPER 0805
4876©	4822 051 20008	CHIP JUMPER 0805
4879©	4822 051 20008	CHIP JUMPER 0805
4884©	4822 051 20008	CHIP JUMPER 0805
4885©	4822 051 20008	CHIP JUMPER 0805
4886©	4822 051 20008	CHIP JUMPER 0805
4887©	4822 051 20008	CHIP JUMPER 0805
4890©	4822 051 20008	CHIP JUMPER 0805
4893©	4822 051 20008	CHIP JUMPER 0805
4894©	4822 051 20008	CHIP JUMPER 0805
4896©	4822 051 30008	CHIP JUMPER 0603
4897©	4822 051 20008	CHIP JUMPER 0805

COILS

1810	2422 543 01068	RESONATOR 8MHZ
1810	4822 242 73557	CERAMIC RES. 8,46MHz
5802	4822 157 70601	100µH

DIODES

6871©	4822 130 11397	BAS316
6872©	4822 130 11397	BAS316
6873©	4822 130 11397	BAS316
6874©	4822 130 11397	BAS316
6875©	9340 548 52115	BZX284-C5V1
6877©	9322 129 34685	BZX284-C3V9
6878©	4822 130 11397	BAS316
6879©	9322 129 34685	BZX284-C3V9

TRANSISTORS

7810©	4822 130 60511	BC847B
7812©	4822 130 60511	BC847B
7874©	4822 130 60511	BC847B
7875©	4822 130 60511	BC847B

INTEGRATED CIRCUITS

7801©	9352 622 36118	TZA1025T/V2 HF-Amplifier
7805©	4822 209 33165	TDA1308T/N1 Dual OpAmp
7806	4822 209 62059	TCA0372DP1 Focus/Track coil driver
7807	4822 209 62059	TCA0372DP1 Slide motor driver
7808	4822 209 62059	TCA0372DP1 Disc motor driver
7821	4822 209 62059	TCA0372DP1 Carousel motor driver
7822	4822 209 62059	TCA0372DP1 Tray motor driver
7873	5322 209 11306	HEF4094BT Shift register
7877©	9352 641 80557	SAA7324H/M2B, CD10 Signal processor